Emulex Drivers for VMware ESX 3.5

FC and FCoE version 7.4.0.54
NIC version 2.101.455.0

User Manual

One Network.
One Company.
Connect with Emulex.

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Installation

Driver Information

Supported Features

- Protocols: SCSI-FCP, Fibre Channel over Ethernet (FCoE), FC initiator mode and NIC.
- Supports 256 (0-255) logical unit numbers (LUNs).
- Supports dynamically adding LUNs and targets.
- Topology support: Fibre Channel Arbitrated Loop (FC-AL), point-to-point, fabric with auto-topology negotiation.
- Support for 1, 2, 4, 8, and 10 Gb/s capable adapters with auto-rate negotiation.
- Support for up to sixteen adapter ports.
- Remote monitoring and parameter configuration using Emulex's OneCommand™ Manager application and the OneCommand Manager application Command Line Interface (CLI).
- Support for Common HBA API.
- Supports NPort ID Virtualization (NPIV) Technology.

New Features in this Release

This ESX 3.5 release includes the following enhancements:

- Supports OneConnect™ universal converged network adapters (UCNAs) for FC, FCoE and NIC, including the OneConnect OCe10100.
- Supports the OneCommand Manager application and the OneCommand Manager application CLI.
- The “VMware Tools” link on the VMware portion of the Emulex® Web site. Visit the link to see the available tools.
- Support for the ANSI/INCITS t11 standard for NPIV deployment in ESX starting with release 3.5.
- For LP11 and LPe11 series adapters, the version 2.72a2 firmware increases the number of vports from 8 to 16.
- Supports NPIV for CNAs.

Prerequisites

The following table lists the support relationship between VMware ESX releases and Emulex drivers. Refer to VMware's vi3_io_guide.pdf for more detailed information.

Table 1: Emulex Driver Support in ESX Releases

VMware ESX Release	Emulex Driver Version
ESX 2.5.4	lpfc_7.3.2_vmw3 (4 Gb/s) provided with ESX 2.5.4 Patch 4
ESX 2.5.5	lpfc_7.3.2_vmw4 (2 and 4 Gb/s)
ESX 3.0.0	lpfc_7.1.14_vmw1 (2 Gb/s) lpfc_7.3.2_vmw1 (4 Gb/s)
ESX 3.0.1	lpfc_7.3.2_vmw2 (2 and 4 Gb/s)
ESX 3.0.2	lpfc_7.3.2_vmw4 (2 and 4 Gb/s)
ESX 3.5.0	lpfc_7.4.0.13 (2 and 4 Gb/s)
ESX 3.5 Update 1	lpfc_7.4.0.13-1 (2 and 4 Gb/s)
ESX 3.5 Update 2	lpfc_7.4.0.13-2 (2, 4, and 8 Gb/s)
Asynchronous CNA Release for ESX 3.5 Update 2	lpfc_7.4.0.31 (FCoE)
ESX 3.5 Update 4	lpfc_7.4.0.40 (2, 4, 8 Gb/s)
Asynchronous CNA Release for ESX 3.5 Update 4	lpfc_7.4.0.41 (FCoE)
ESX 3.5 Update 5	lpfc_7.4.0.52 (FC/FCoE) be2_2.101.374.0 (NIC)

Compatibility

For a list of adapters that are compatible with this driver, see the driver's Downloads page on the Emulex Web site. For compatible firmware versions, see the Downloads page for the specific adapter.

Known Issues

Refer to the product release notes for the latest information.

Installing the Drivers

There are two Emulex drivers (FC/FCoE and NIC) available through the Emulex Web site.

Note: The NIC driver must be installed to manage OneConnect FCoE or NIC UCNAs using the OneCommand Manager application.

To install the Emulex drivers for VMware:

1. Install a supported Emulex adapter in the system. Refer to the adapter's Installation manual for specific hardware installation instructions.
2. Remove any previously installed drivers and/or utilities (such as HBAnyware) that were installed from the Emulex CD or downloaded from the Emulex Web site before proceeding. Refer to “Uninstalling the Drivers” on page 4 and “Uninstalling Older HBAnyware Kits on VMware” on page 5 for more information.
3. Download the specific driver kit from the Emulex Web site.
4. Log on to the ESX Server host.
5. Install the specific driver binary RPM file:
   - For the FC/FCoE driver, type:

     `rpm -i VMware-esx-drivers-scsi-lpfc_elx_v740-350-<driver version>-001.i386.rpm`
   - For the NIC driver, type:

     `rpm -i VMware-esx-drivers-net-be2net-2.101-<driver version>.i386.rpm`

Note: In-band management (FC based management) is not supported on VMware ESX 3.5 servers. Use out-of band management (TCP/IP based management) to remotely manage adapters on ESX 3.5 servers.

Opening the ESX Server Firewall

For the VMware ESX 3.5 Server, the firewall on the ESX Server must be opened to manage systems remotely using TCP/IP-based management. To enable TCP port #23333, run the following commands:

```
esxcfg-firewall --openPort 23333,tcp,in,OneCommand
esxcfg-firewall --openPort 23333,tcp,out,OneCommand
```

To verify that the correct port is open, run the following command:

```
esxcfg-firewall -q
```

The TCP port number can be changed. If it is not changed, the default is 23333.

Refer to the VMware Server Configuration Guide for more details on how to configure the ESX firewall.

Uninstalling the Drivers

To uninstall a specific driver binary RPM file:

- For the FC/FCoE driver, type:
  `rpm -e VMware-esx-drivers-scsi-lpfc_elx_v740-350-<driver version>`
- For the NIC driver, type:
  `rpm -e VMware-esx-drivers-be2net-2.101-<driver version>`

Installing the OneCommand Manager Application CLI

New VMware Systems

To install the OneCommand Manager application CLI on a new system, install the specific rpm file for your VMware driver version.

Prerequisites

- The LPFC driver version 7.4 or later must be loaded.

Note: In-band management (FC based management) is not supported on VMware ESX 3.5 servers. Use out-of band management (TCP/IP based management) to remotely manage adapters on ESX 3.5 servers.
For VMware ESX 3.5 servers, the firewall on the ESX Server must be opened to manage systems remotely using TCP/IP. For instructions, see “Opening the ESX Server Firewall” on page 3.

Procedures

To install the OneCommand Manager application CLI:

1. Log on to the ESX Server host.
2. Copy the elxocmcore-esxNN-<*kit version*>.i386.rpm file to a directory on the install machine.
3. CD to the directory to which you copied the rpm file.
4. Install the rpm. Type:
   `rpm -U elxocmcore-esx35-<kit version>.i386.rpm`

The rpm contents are installed in /usr/sbin/hbanyware. The OneCommand Manager application CLI is also located in this directory.

VMware Systems with an Existing HBAnyware CLI Kit Installed

To install the OneCommand Manager application CLI on a VMware system with an existing HBAnyware CLI installed:

1. Install the RPM by entering the following command all on one line:
   `# rpm -U elxocmcore-esx35-<kit version>.i386.rpm`

Uninstalling Older HBAnyware Kits on VMware

To uninstall an older HBAnyware Kit on VMware:

1. Log on to the ESX Server host.
2. Type: `rpm -qa | grep elx` and locate either of the following rpm files:

   `elxvmwarecorekit-<kit version>`

   Or

   `elxocmcore-esx35-<kit version>`
3. Type:

   `rpm -e elxvmwarecorekit-<kit version>`

   Or

   `rpm -e elxocmcore-esx35-<kit version>`

Configuration

Introduction

You can configure the driver parameters using native ESX tools or Emulex's OneCommand Manager application. This section describes how to configure parameters using native ESX tools.

For a more comprehensive description of ESX tools, refer to the vi3_server_config.pdf documentation. If you have further questions, contact a VMware technical support representative.

Note: VMware does not officially support unloading the driver via vmkload_mod -u. If you must unload the driver, contact VMware customer support.

Emulex recommends using the OneCommand Manager application to set the configuration parameters. Refer to the Emulex OneCommand Manager Application User Manual for more information about the utility.

Note: NPIV port creation and deletion are performed by VMware's Infrastructure Client (VIC). Refer to VMware's Infrastructure Client documentation for more information.

Note: In-band management (FC based management) is not supported on VMware ESX 3.5 servers. Use out-of band management (TCP/IP based management) to remotely manage adapters on ESX 3.5 servers.

For the VMware ESX 3.5 Server, the firewall on the ESX Server must be opened to manage systems remotely using TCP/IP-based management. For instructions, see "Opening the ESX Server Firewall" on page 3.

LPFC Driver Configuration Methods Using Native ESX Tools

There are two methods for configuring the Fibre Channel LPFC driver parameters using the native ESX tools:

- Permanent global configuration
- Permanent per adapter configuration

Note: In addition to the permanent methods, the OneCommand Manager application also supports temporary methods (both global and per adapter) for configuring driver parameters. Emulex recommends using the OneCommand Manager application to set the configuration parameters. Refer to the OneCommand Manager Application User Manual for more information.

Note: Any settings configured using the native ESX tools will not take effect until the server is rebooted. However, any changes to dynamic parameters made using the OneCommand Manager application CLI immediately take effect. See "Emulex LPFC Driver Configuration Parameters" on page 11 for more information on driver parameters.

Permanent Configuration Methods

Permanent configuration requires that the new values be saved in the ESX environment. These changes are considered permanent because they persist across system reboots.

To make changes that impact all adapters in the system (global changes), follow these steps. See “LPFC Driver Configuration Parameters” on page 11 for parameter names and values. Parameter values are hexadecimal and decimal.

1. From the Console Operating System (COS) terminal window, type:

   ```
   esxcfg-module -s “param=value param2=value...” <driver_name>
   ```

   The <driver_name> is obtained from the `vmkload_mod -l` call. Look for the “lpfc” prefix.
2. Rebuild the ESX bootstrap settings. Type:

   ```
   esxcfg-boot -b
   ```
3. Reboot the server. Type:

   ```
   reboot
   ```

Example of Permanent Global Configuration

The following example sets lun_queue_depth to 20 (default is 30) for all Emulex adapters in your system.

1. Locate the parameter in Table 2 on page 11.
2. Set the permanent value. Type:

   ```
   esxcfg-module -s “lpfc_lun_queue_depth=20” <driver_name>
   ```
3. Rebuild the ESX bootstrap settings. Type:

   ```
   esxcfg-boot -b
   ```
4. Reboot the server. Type:

   ```
   reboot
   ```

   The new setting is used when the driver reloads.

   To verify the setting, type:

   ```
   esxcfg-module -g lpfc_740
   ```

Example of Permanent Per Adapter Configuration

The following example sets lun_queue_depth to 20 (default is 30) for adapter #1.

1. Set the adapter-specific value. Type:

   ```
   esxcfg-module -s “lpfc1_lun_queue_depth=20” <driver_name>
   ```
2. Rebuild the ESX bootstrap settings. Type:

   ```
   esxcfg-boot -b
   ```
3. Reboot the server. Type:

   ```
   reboot
   ```

   The new setting is used when the driver reloads.

   To verify the setting type:

   ```
   esxcfg-module -g lpfc_740
   ```

The following example sets lun_queue_depth to 20 (default is 30) for adapter #1 and lun_queue_depth to 10 (default is 30) for adapter #2.

1. Set the adapter-specific value. Type:

   ```
   esxcfg-module -s “lpfc1_lun_queue_depth=20
   lpfc2_lun_queue_depth=10” <driver_name>
   ```

   Note: Type the command all on one line without a carriage return.

2. Rebuild the ESX bootstrap settings. Type:

   ```
   esxcfg-boot -b
   ```

3. Reboot the server. Type:

   ```
   reboot
   ```

   The new settings are used when the driver reloads.

   To verify the settings type:

   ```
   esxcfg-module -g lpfc_740
   ```

Dynamically Add LUNs and Targets

For instructions on dynamically adding LUNs and targets, refer to the “Using Rescan” section in VMware’s vi3_esx_san_cfg.pdf.

Creating a Fibre Channel Remote Boot Disk

For instructions on creating a Fibre Channel remote boot disk, refer to VMware’s vi3_esx_san_cfg.pdf, “Chapter 6, Using Boot from SAN with ESX Server Systems”.

Virtualization Features

For instructions on how to install the VMware Tools in guest operating systems, refer to the Support section of the VMware Web site.

Configuring Multiple NIC Interfaces with OneConnect UCNAs

Enabling the NetQueue Feature

To use the multiple interface feature in ESX Server 3.5, you must enable the NetQueue feature in ESX Server, which is disabled by default.

- To check if NetQueue is enabled, run the following command from the ESX Server console:

  ```
  ESX# esxcfg-advcfg -j netNetqueueEnabled
  ```

  If it prints 'netNetqueueEnabled = FALSE', the feature is disabled.

- To enable NetQueue, run the following command:

  ```
  ESX# esxcfg-advcfg -k TRUE netNetqueueEnabled
  ```

  Reboot the ESX Server for the change to take effect.

How ESX Server Creates and Names Interfaces

The OneConnect NIC driver supports a maximum of four UCNAs per system. For dual-channel UCNAs running in standard operating mode, the OneConnect driver creates two interfaces (one for each physical port). The first and second interfaces are respectively named vmnic0 and vmnic1 (assuming there are no other network interfaces in your configuration). The same applies to virtual NIC (vNIC)-capable UCNAs when vNIC mode is disabled in the system BIOS.

When vNIC mode is enabled in the system BIOS (for those boards that support vNIC), the OneConnect driver creates eight interfaces (four for each physical port). The interfaces are labeled vmnic0 through vmnic7 (assuming there are no other network interfaces in your configuration). All 8 vNICs are fully functional and support the same feature set as a standard NIC. The vNICs can also be linked to a virtual switch in the same way:

```
# esxcfg-nics -l                          //list recognized nics
# esxcfg-vswitch -l                       //list available vswitches
# esxcfg-vswitch -a vSwitch0              //create vSwitch0
# esxcfg-vswitch  -A VMNet0 vSwitch0      //create virtual machine
network, VMNet0 and add it to vSwitch0
# esxcfg-vswitch -L vmnic0 vSwitch0       //link vmnic0 to vSwitch0
```

The only difference being that in vNIC mode, each of the four vNICs tied to a physical port share the port's 10GbE bandwidth.

Configuring VLANs

The OneConnect NIC driver is programmed to perform VLAN filtering in the hardware. To configure VLANs on a OneConnect NIC driver interface, create the vSwitch with the required VLAN ID and this interface as an adapter to this vSwitch.

Native VLAN configuration in the guest operating system (for example, using vconfig in the Linux guest operating system) is not supported.

Configuring Network Heap Size in ESX Server

By default the ESX Server network stack allocates 64MB of buffers to handle network data. If the network load requires more than 64MB of memory to hold the in transit network data, the OneConnect NIC driver cannot allocate memory for posting receive buffers. When this happens, the NIC driver logs messages in the file /proc/vmware/log indicating that the alloc_skb() call failed. This impacts the network performance considerably.

- To increase the network heap size to a larger value (for example, 128MB), run:

  ```
  # esxcfg-advcfg -k 128 netPktHeapMaxSize
  # esxcfg-advcfg -j netPktHeapMaxSize
  netPktHeapMaxSize = 128
  ```

  The new value takes effect after a reboot.

- To read the current size of the network heap, run:

  ```
  # esxcfg-advcfg -j netPktHeapMaxSize
  netPktHeapMaxSize = 0
  ```

  If the default value of the 64MB is in effect, this command shows the size as 0. If any other values are in effect, it prints the current value.

ESX Server Network Driver

The following section includes examples of the various configuration parameters for improving the performance of the OneConnect network drivers for ESX Server.

Enabling vmxnet Emulation, Jumbo Frames, and TSO

The OneConnect UCNA supports jumbo frames and TSO. Both jumbo frames and TSO are necessary for optimal performance with the OneConnect UCNA. Also, using the vmxnet NIC emulator can provide a significant performance boost. These features are not enabled by default in ESX Server.

To enable these features:

1. Log into the console operating system (COS).
2. For each guest operating system, there is a .vmx file in the path:

   `/vmfs/volumes/*/<VM-NAME>/VM-NAME>.vmx`

   where <VM-NAME> is the name of the VM.

3. For each VM, edit this file and add the following line for the OneConnect driver interface:

   ```
   ethernet0.features=”15”
   ```

4. To enable vmxnet emulation, add the following line for the OneConnect driver interface:

   ```
   ethernet0.virtualDev=”vmxnet”
   ```

5. Restart the VMs.

The above steps assume that eth0 is the interface added to the VM from the OneConnect Network.

Note: The use of vmx NIC emulation requires VMware Tools to be installed in the guest operating systems. For instructions on how to install the VMware Tools in guest operating systems, refer to the Support section of the VMware Web site.

Configuring the Virtual Switch to Use Jumbo Frames

To use jumbo frames, you must increase the Maximum Transmission Unit (MTU) in the vSwitch and the guest operating system. For the best performance and resource utilization, set the MTU in the virtual switch and guest operating system to the maximum (8179 bytes) supported by the OneConnect driver.

Setting the MTU Size

In a vSwitch

To change the MTU to 8179 in the COS, run the following command for each switch in the console operating system:

```
esxcfg-vswitch vSwitch<N> -m 8179
```

where <N> is the number of the switch.

In a Linux Guest Operating System

To set the MTU of the OneConnect driver interface in each Linux guest operating system to 8179, run the following command:

```
ifconfig eth<N> mtu 8179
```

where <N> is the number of the Ethernet interface on which you are working.

In a Windows Guest Operating System

To set the MTU in each Windows guest operating system:

1. From the **Start** menu, select **Control Panel > System**.
2. Select the **Hardware** tab and open **Device Manager**.
3. Expand the **Network Adapters** heading.
4. Right-click the NIC, and select **Properties**.
5. Select the **Advanced** tab and set the MTU value.

Pinning VM and Interrupts to CPUs

The OneConnect NIC interface driver supports MSI-X interrupts. The driver requests separate MSI-X IRQ vectors for each of the interfaces. Pinning VMs and the IRQ vector to a CPU core provides the best performance for OneConnect UCNAs. With a multi-core CPU, pinning a VM and the MSI-X vector of the OneConnect driver interface, configured in that VM to two cores sharing an L2 cache, provides the best performance.

For example, in a quad core Xeon, CPU0 and CPU1 share a 4MB L2 cache. If vmnic07 is configured in VM1, for the best performance, pin VM1 to CPU0 and the IRQ corresponding to vmnic07 to CPU1.

To pin a VM to a CPU in the VI Client:

1. Power OFF the VM.
2. Click **Edit Settings** for that VM, then select the **Resources** tab.
3. Select **Advanced CPU** in the left pane.
4. In the Scheduling Affinity frame, select the CPU to pin it to.
5. Power ON the VM.

To pin an IRQ vector on a CPU, run the following command in the console operating system:

```
echo "move <IRQ-NO> <CPU-ID>" > /proc/vmware/intr-tracker
```

You can find the IRQ-NO corresponding to a vmnic by running:

```
cat /proc/vmware/interrupts
```

To see all IRQ Vectors and the CPU they are pinned to, run:

```
cat /proc/vmware/intr-tracker
```

Emulex LPFC Driver Configuration Parameters

All adapter-specific LPFC driver parameters have an lpfc*X*_ prefix (where *X* is the driver instance number); for example, setting lpfc0_lun_queue_depth=20 makes 20 the default number of maximum commands which can be sent to a single logical unit (disk) for lpfc instance 0.

Dynamic parameters do not require a system reboot for changes to take effect.

Table 2: LPFC Driver Configuration Parameters

Variable	Default	Min	Max	Dynamic	Comments
lpfc_hba_queue_depth	0xffff	1	0xffff	Yes	Maximum number of FCP commands that can queue to an Emulex adapter. The value cannot exceed what the adapter supports.
lpfc_initiator_login	0	0=Off	1=On	Yes	Enables logins to other virtual initiators.
lpfc_ack0	0	0=Off	1=On	No	Use ACK0 for class 2.
lpfc_automap	1	0=Off	1=On	No	Automatically assign SCSI IDs to FCP targets detected.
lpfc_check_cond_err	0	0=Off	1=On	Yes	Treat certain FCP check conditions as FCP RSP errors.

Table 2: LPFC Driver Configuration Parameters (Continued)

Variable	Default	Min	Max	Dynamic	Comments
lpfc_cr_count	1	1	255	No	This parameter determines the values for I/O coalescing for cr_delay (msec) or cr_count outstanding commands. **Note:** This parameter only applies to SLI-3-based adapters.
lpfc_cr_delay	0	0	63	No	This parameter determines the values for I/O coalescing for cr_delay (msec) or cr_count outstanding commands. **Note:** This parameter only applies to SLI-3-based adapters.
lpfc_delay_rsp_err	0	0=Off	1=On	Yes	Treat FCP RSP errors like no-device-delay.
lpfc_discovery_threads	1	30	64	No	Specifies the maximum number of ELS commands that can be outstanding for a discovery.
lpfc_dqfull_throttle_up_inc	1	0	128	Yes	Amount to increment LUN queue depth each time.
lpfc_dqfull_throttle_up_time	1	0	30	Yes	Time interval, in seconds, to increment LUN queue depth.
lpfc_extra_io_tmo	0	0	255	Yes	Extra FCP cmd timeout when connected to a fabric (in seconds).
lpfc_fcp_bind_DID	inactive	N/A	N/A	No	Bind specific SCSI IDs to targets based on Fibre Channel (FC) Port ID.
lpfc_fcp_bind_method	2	1	4	No	Specifies the bind method (WWWN/WWPN/DID/ALPA map) to be used.
lpfc_fcp_bind_WWNN	inactive	N/A	N/A	No	Bind specific SCSI IDs to targets based on FC WWNN.
lpfc_fcp_bind_WWPN	inactive	N/A	N/A	No	Bind specific SCSI IDs to targets based on FC WWPN.
lpfc_fcp_class	3	2	3	Yes	FC class for FCP data transmission.

Table 2: LPFC Driver Configuration Parameters (Continued)

Variable	Default	Min	Max	Dynamic	Comments
lpfc_fcp_imax	10000	636	651042	Yes	Set the maximum number of fast-path FCP interrupts per second. **Note:** This parameter only applies to Emulex UCNAs.
lpfc_fdmi_on	0	0	2	No	False (0) if disabled. (1) or (2) if enabled depending on type of support needed.
lpfc_iocb_wdog_tmo	40	0	55	No	Timeout value for pending FC I/O in the driver.
lpfc_linkdown_tmo	30	0	255	Yes	(seconds) How long the driver waits before deciding that the FC link is down.
lpfc_link_speed	0	0=auto select 1=1 Gb/s 2=2 Gb/s 4=4 Gb/s 8=8 Gb/s		No	Sets link speed. **Note:** This parameter is only applicable to SLI-3-based adapters.
lpfc_log_verbose	0x0	0x0	0xffff	Yes	(bit mask) Extra activity logging.
lpfc_lun_queue_depth	30	1	128	Yes	Default max commands sent to a single logical unit (disk).
lpfc_lun_skip	0	0=Off	1=On	No	Allows SCSI layers to detect all LUNs if there are LUN holes on a device.
lpfc_max_lun	256	1	256	Yes	Specifies the maximum number of LUNs per target. A value of 20 means LUNs from 0 to 19 are valid.
lpfc_max_target	256	1	256	No	This configuration parameter limits how many targets the driver will support.
lpfc_max_vpi	0xffff	0	0xffff	No	NPIV: Maximum number of vpis available per physical port.
lpfc_nodev_holdio	0	0=Off	1=On	Yes	If the device disappears, hold I/O until it comes back.
lpfc_no_device_delay	1	0	30	Yes	Delay to fail back an I/O in seconds.
lpfc_nodev_tmo	30	0	255	Yes	Seconds to hold I/O err if device disappears.

Table 2: LPFC Driver Configuration Parameters (Continued)

Variable	Default	Min	Max	Dynamic	Comments
lpfc_ns_threads	2	1	32	Yes	NPIV: Number of concurrent NameServer requests allowed to be outstanding.
lpfc_pci_max_read	0	0 = driver default 512 = 512 bytes 1024 = 1024 bytes 2048 = 2048 bytes 4096 = 4096 bytes		No	The maximum number of bytes transferred per pci DMA read. The default value 0 means the driver will automatically determine the correct value. (Update1 only.)
lpfc_peer_vport_login	0	0	1	Yes	NPIV: Allows peer vports to log into each other.
lpfc_scan_down	1	0=Off	1=On	Yes	Select method for scanning ALPA to assign a SCSI ID.
lpfc_scsi_req_tmo	30	0	255	Yes	Time out value (in seconds) for SCSI passthrough requests.
lpfc_tgt_queue_depth	0xffff	1	0xffff	Yes	Default max commands sent to a single target. Value not to exceed what the adapter supports minus ten (see lpfc_hba_queue_depth). For example, if the adapter supports 512, the target will default to 502.
lpfc_topology	0	0x0=loop then P2P 0x2=P2P only 0x4=loop only 0x6=P2P then loop		No	FC link topology (defaults to loop, if it fails attempts point-to-point mode). **Note:** This parameter only applies to SLI-3-based adapters.
lpfc_use_adisc	0	0=Off	1=On	Yes	Send ADISC instead of PLOGI for device discovery or RSCN.

Troubleshooting

Introduction

There are several circumstances in which your system may operate in an unexpected manner. The Troubleshooting section explains many of these circumstances and offers one or more workarounds for each situation.

Unusual Situations and Their Resolutions

General Situations

Table 3: General Situations

Situation	Resolution
Vports created on an adapter are not re-created if the adapter is replaced.	VPorts are assigned to a specific adapter only. They cannot be transferred to a new adapter. You must create new VPorts if an adapter is replaced.
NPIV configuration not working as expected.	Check for a message similar to the following message in the VMkernel log: `The Adapter failed to init, retry in SLI-2 mode` This error could indicate a hardware or firmware problem. Try reflashing your up-to-date FW or upgrade to the latest firmware. If this problem persists, report the error to Technical Support.
Emulex PCI-X adapters and PCI-X bridge chipsets DMA size transfer issue	Sun, Emulex and VMware have worked together to identify an issue with certain PCI-X bridge chipsets. The issue is currently limited to Sun Fire X4100 and X4200 servers. **Note:** The Sun Fire X4100 M2 and X4200 M2 servers are not affected. The issue is centered around the size of a DMA transfer that works repeatedly and successfully from the AMD chipset versus the maximum DMA transfer size supported by the adapter. The primary symptoms are hung VMs and a large number of SCSI commands timed out by the Emulex driver. If you are experiencing these symptoms, contact VMware Technical Support for a supported driver that corrects the DMA transfer issue. In addition, the adapter may require a firmware upgrade. The minimum firmware revisions are: LP10000 series HBA - 1.92a1 LP11000 series HBA - 2.72a2 If you have any questions on the minimum firmware revision, contact Emulex Technical Support.

ESX Server NIC

Table 4: ESX Server NIC

Situation	Resolution
During boot, the system hangs after the OneConnect BIOS banner is displayed.	The firmware may be corrupted and must be re-flashed. Contact Emulex Technical Support for additional assistance.

A lot of "alloc_skb() failed" messages appear in the log file: /proc/vmware/log	This could be due to low configured value for netPktHeapMaxSize. Try increasing it to a higher value. To read the current value, run:
	`# esxcfg-advcfg -j netPktHeapMaxSize`
	(A value of 0 indicates default - 64MB)
	
	To increase the size to (for example, 128 MB), run:
	`# esxcfg-advcfg -k 128 netPktHeapMaxSize`
	
	(netPktHeapMaxSize can also be configured through VI Client using **Configuration > Advanced Settings > VMKernel**)
	After configuring the size, reboot the system.

Unable to ping from one VM to another VM.	The OneConnect driver creates two vmnic interfaces - one for each port. If these interfaces are configured as uplinks in two separate vSwitches, the VMs in each of these switches are in separate networks with no network path between them and pinging between the VMs in two groups will fail. If you want all these VMs to be in the same network, configure them as teaming uplinks to one vSwitch option. Each of the vmnics (vmnic0 to vmnic7) must be configured in a separate vSwitch. In this configuration, there is no network path between the vSwitches and pinging between these VMs will not work.

ESX Server Event/Error Log Messages

Retrieving ESX Server NIC Error Log Codes

For ESX Server systems, the OneConnect NIC (be2net) driver generates error codes to the /var/log/vmkernel log file. The vmkernel log file is an ASCII text file and can be viewed and searched with a text editor such as vi. The vmkernel log file is automatically rotated as it gets larger, and the rotated log files are named vmkernel.x, where x is an integer.

To search the log file for error messages, at the command prompt type:

```
#cd /var/log
#vi vmkernel
```

For example, you may see the following message:

```
Sep 9 19:48:04 esx-server vmkernel: BladeEngine 2 Net Driver: Did
not receive completions for all TX requests.
```

ESX Server NIC Event Log Entries

The following is a list of ESX Server 3.5 network event log error messages. It includes the severity of the error, the message displayed, and the message description. When reporting a problem with the OneConnect UCNA to Emulex, check the message log (/proc/vmware/log) and report any of these entries that may be present.

Note: In the following table, <D>, <DD>, or <DDD> in the 'Messages Displayed' column refers to decimal values that appear in the actual error messages.

Table 5: ESX Server NIC Event Log Entries

Severity	Message Displayed	Description
Warning	`Could not get link status for nmnic<D>`	The firmware command to get the Link status returned an error.
Error	`Cannot create more than 17 interfaces`	The OneConnect UCNA supports a maximum of 17 interfaces. This error is reported when the driver is loaded with a value more than 17 for the module parameter rings.
Warning	`add_async_event_callback failed. Link status changes may not be reflected`	The firmware command to register for link status changes failed. Messages indicating link status change will not appear. If the link is up, the driver should work properly.
Warning	`Cannot support more than 3 BE Adapters`	The driver supports up to a maximum of three adapters. More than three adapters were detected. The first three adapters should work correctly. The rest cannot be used.
Warning	`Did not receive completions for all TX requests`	Some transmit requests that were started did not complete in a reasonable time during unloading of the driver. This is most likely due to a fatal fault in the adapter.
Warning	`VMware doesn't support multiple frags. Dropping the pkt(Len=%d) > frag size(8192)`	The driver received a packet larger than 8192 bytes in multiple fragments. Since VMware does not support such fragments in skb, this packet is ignored. Since the OneConnect interfaces do not accept MTUs larger than 8178, packets larger than 8192 are not expected.
Warning	`Invalid value of bps. Must be 0 to 100`	An ioctl to set the QoS parameter bits/ seconds encoding value outside of 0 to 100 was attempted. The request is ignored and the QoS setting is not changed.
Warning	`pci_enable_msix() failed. Not using MSIx`	The call to enable MSI-X for the OneConnect UCNA NIC driver interface failed. In ESX Server 3.5 update 1 and later versions, MSI-X is not enabled if NetQueues are not enabled. Try enabling NetQueues. Even if MSI-X is not enabled, the driver can continue to work using INT-X interrupts.

Table 5: ESX Server NIC Event Log Entries (Continued)

Severity	Message Displayed	Description
Error	`Failed to map PCI BARS`	Call to map PCI BAR registers of the OneConnect UCNA failed. This is a rare failure that may occur due to system resource limitations.
Warning	`Invalid EQ ResourceID <DDD>`	The OneConnect UCNA reported an event with an invalid resource ID. This error should not happen normally.
Warning	`Wrong PD ID <DD>`	An ioctl to configure QoS was issued with a wrong PD ID value. The request is ignored and the QoS setting is not changed.
Error	`betx_ether_frame: Exceeds Max Tx Frags`	The driver received a transmit request with more than 30 fragments. The request failed since the OneConnect UCNA does not support more than 30 SG elements in a TX request. This should not normally happen in ESX Server 3.5.
Error	`BniInit() failed – Error <DDD>`	Initialization of the host data structures to access the network function of the OneConnect UCNA reported an error.
Error	`Interface initialization failed`	Allocation of resources for the network interface failed.
Warning	`MSIX Request IRQ failed for pd_id <DD> – Errno <DDD>`	Request for MSI-X interrupt registration for the interface vmnic0-<DD> failed. The OneConnect NIC driver interface should still work with INT-X interrupts.
Error	`INTx Request IRQ failed – Errno <DDD>`	Request for INT-X interrupt registration failed. This error is caused by system resource limitations. The OneConnect NIC driver interface is unusable.
Warning	`Failed to register char device`	Could not create the char device used for certain management functions. The driver must still work.
Error	`pci_enable_device() for BE adapter <DD> failed`	The operating system call to enable the OneConnect UCNA failed.
Error	`Could not set PCI DMA Mask`	The operating system call to set the DMA mask failed.
Error	`BladeEngine init failed`	The initialization of the OneConnect UCNA failed.
Warning	`Unable to get BE Firmware Version`	The firmware command to get the version number failed. Most likely due to incompatible firmware.

Table 5: ESX Server NIC Event Log Entries (Continued)

Severity	Message Displayed	Description
Warning	`alloc_skb() failed. Try increasing netPktHeapMaxSize`	The driver could not allocate an skb to pass a received frame to the stack. A transient failure can be ignored. If this message is often observed, try increasing netPktHeapMaxSize. For example, to set the size to 256MB, run: `esxcfg-advcfg –k 256 netPktHeapMaxSize` then reboot the system.
Warning	`Invalid MTU requested. Must be between <DDD> and <DDD> bytes`	An invalid MTU size is in the MTU configuration ioctl. The MTU will not be changed.
Information	`MTU changed from <DDD> to <DDD>`	The MTU size changed as requested.
Warning	`Unable to get pause frame settings`	The firmware command to get the pause frame settings failed.
Warning	`Unable to set pause frame settings`	The firmware command to set the pause frame settings failed.
Information	`Active port changed due to VLD on switch`	The active port of the OneConnect UCNA changed and the change was triggered by a VLD message from the switch. The current link status follows this message.
Information	`Active port changed due to port link status change`	The active port of the OneConnect UCNA changed and the change was triggered by a change in the link status of the one of the two ports of the OneConnect UCNA. This could be due to a cable being connected or disconnected on one of the ports or one of the ports failing. The current link status follows this message.
Information	`Link status update`	There was a change in the link status. There is no change in the active port. This could be due to a cable being connected or disconnected on one of the ports or one of the ports failing. The current link status follows this message.
Information	`Link Properties for vmnic<D>: Both ports are down`	An informational message that both ports of the OneConnect are down.

LPFC Log Messages

Introduction

Log messages are organized into logical groups based on code functionality within the Fibre Channel driver. Each group consists of a block of 100 log message numbers. Most groups require a single block of 100 message numbers, however some groups (INIT, FCP) require two blocks.

The groups and the associated number ranges are defined in the Message Log table below. The preamble string shown in the Message Log table is displayed as part of the log message. The lower case 'x' of the preamble string defines the severity of the log message. The 'x' will be replaced by one of five lower case letters. Those letters are defined in the Severity Code table.

Severity Codes

Information and warning messages can be turned ON or OFF by setting/resetting the appropriate mask bit(s) in the variable 'lpfc_log_verbose' located in the driver configuration module, lpfc.conf.c. By default, both information and warning messages are disabled. Configuration error (c), error (e), and panic (p) messages can not be disabled.

Table 6: Severity Code Table

Code	Severity
i	Information
w	Warning
c	Configuration Error
e	Error
p	Panic

ETRACE Logging Mechanism

The U4 Async LPFC driver includes a new logging mechanism called ETRACE. The ETRACE mechanisms are embedded in the code to capture information during any unexpected failures or events.

The ETRACE mechanism displays information in the following format:

<func_name><[hba_boardno]>ETRACE_<no:Line>

where,

- func_name = the function name
- hba_boardno = the HBA model number
- no:Line = the line number in the code where this ETRACE occurs

Emulex may use ETRACEs to troubleshoot customer issues.

Message Group Masks

Table 7 defines the log message groups and the associated number ranges.

- The preamble string shown in this table is displayed as part of the log message.
- The lower case 'x' of the preamble string defines the severity of the log message and represents one of five lower case letters defined in the severity codes table.

Table 7: Message Log Table

LOG Message Verbose Mask Definition	Preamble String	From	To	Verbose Bit	Verbose Description
LOG_ELS	ELx	0100	0199	0x1	ELS events
LOG_DISCOVERY	DIx	0200	0299	0x2	Link discovery events
LOG_MBOX LOG_SLI	MBx	0300	0399	0x4	Mailbox and SLI events
LOG_INIT	INx	0400	0499	0x8	Initialization events
Future		0500	0599		
LOG_IP		0600	0699		IP Log events
LOG_FCP	FPx	0700	0799	0x40	FCP traffic history
Future		0800	0899		
LOG_NODE	NDx	0900	0999	0x80	Node table events
Reserved		1000	1099	0x100	
Reserved	TMx	1100	1199	0x200	
LOG_MISC	MIx	1200	1299	0x400	Miscellaneous events
LOG_LINK_EVENT FCoE	LKx	1300	1399	0x10	Link and FCoE events
Future		1400	1499		
LOG_LIBDFC	IOx	1600	1699	0x2000	IOCTL events
LOG_VPORT	VPx	1800	1899	0x4000	Vport events
LOG_INIT		4500	4599		Initialization events
LOG_ALL_MSG				0xffff	Log all messages

Message Log Example

The following is an example of a LOG message:

```
Jul 12 16:30:26 <node> kernel: !lpfc0:0234:DIi:Device Discovery
completes
```

In the above LOG message:

- lpfc0 identifies the LOG message as coming from EMULEX adapter0.
- 0234 identifies the LOG message number.
- DIi identifies the LOG message as a DISCOVERY (DI) INFORMATION (i) message.

Note: If the word 'Data:' is present in a LOG message, any information to the right of 'Data:' is intended for Emulex technical support/engineering use only.

ELS Events (0100 - 0199)

lpfc_mes0100: FLOGI failure

DESCRIPTION: An ELS FLOGI command that was sent to the fabric failed.
DATA: (1) ulpStatus (2) ulpWord[4]
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0101: FLOGI completes successfully

DESCRIPTION: An ELS FLOGI command that was sent to the fabric succeeded.
DATA: (1) ulpWord[4] (2) e_d_tov (3) r_a_tov (4) edtovResolution
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0102: PLOGI completes to NPort <nlp_DID> on vpi <vpi>

DESCRIPTION: The HBA performed a PLOGI into a remote NPort.
DATA: (1) ulpStatus (2) ulpWord[4] (3) disc (4) num_disc_nodes
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0103: PRLI completes to NPort <nlp_DID>

DESCRIPTION: The HBA performed a PRLI into a remote NPort.
DATA: (1) ulpStatus (2) ulpWord[4] (3) num_disc_nodes
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0104: ADISC completes to NPort <nlp_DID>

DESCRIPTION: The HBA performed an ADISC into a remote NPort.
DATA: (1) ulpStatus (2) ulpWord[4] (3) disc (4) num_disc_nodes
SEVERITY: Information
LOG: LOG_ELS verbose

ACTION: No action needed, informational.

lpfc_mes0105: LOGO completes to NPort <nlp_DID>

DESCRIPTION: The HBA performed a LOGO to a remote NPort.
DATA: (1) ulpStatus (2) ulpWord[4] (3) num_disc_nodes
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0106: ELS cmd tag <ulpIoTag> completes

DESCRIPTION: The specific ELS command was completed by the firmware.
DATA: (1) ulpStatus (2) ulpWord[4]
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0107: Retry ELS command <elsCmd> to remote NPort <did>

DESCRIPTION: The driver is retrying the specific ELS command.
DATA: ((1) retry (2) delay
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0108: No retry ELS command <elsCmd> to remote NPort <did>

DESCRIPTION: The driver decided not to retry the specific ELS command that failed.
DATA: (1) retry (2) nlp_flag
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0109: ACC to LOGO completes to NPort <nlp_DID>

DESCRIPTION: The driver received a LOGO from a remote NPort and successfully issued an ACC response.
DATA: (1) nlp_flag (2) nlp_state (3) nlp_rpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0110: ELS response tag <ulpIoTag> completes

DESCRIPTION: The specific ELS response was completed by the firmware.
DATA: (1) ulpStatus (2) ulpWord[4] (3) nlp_DID (4) nlp_flag (5) nlp_state (6) nle.nlp_rpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0111: Dropping received ELS cmd

DESCRIPTION: The driver decided to drop an ELS response ring entry.
DATA: (1) ulpStatus (2) ulpWord[4]
SEVERITY: Error
LOG: Always

ACTION: This error could indicate a software driver or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0112: ELS command <elsCmd> on vpi <vpi> received from NPORT <did>

DESCRIPTION: Received the specific ELS command from a remote NPort.
DATA: (1) fc_ffstate
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0113: An FLOGI ELS command <elsCmd> was received from DID <did> in Loop Mode

DESCRIPTION: While in Loop Mode an unknown or unsupported ELS command was received.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Check device DID

lpfc_mes0114: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0115: Unknown ELS command <elsCmd> received from NPort <did>

DESCRIPTION: Received an unsupported ELS command from a remote NPort.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Check remote NPort for potential problem.

lpfc_mes0116: Xmit ELS command <elsCmd> SID <sid> DID <did> on vpi <vpi>

DESCRIPTION: Xmit ELS command to remote NPort.
DATA: (1) binfo->fc_ffstate (2) ulpContext
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0117: Xmit ELS response <elsCmd> SID <sid> DID <did> on vpi <vpi>

DESCRIPTION: Xmit ELS response to remote NPort.
DATA: (1) size (2) ulpContext
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0118: Xmit CT response on exchange <xid>

DESCRIPTION: Xmit a CT response on the appropriate exchange.
DATA: (1) ulpIoTag (2) vport_state (3) nport
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0119: Issue GEN REQ IOCB for NPort <did>

DESCRIPTION: Issue a GEN REQ IOCB for remote NPort. These are typically used for CT requests.
DATA: (1) ulpIoTag (2) fc_ffstate (3) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0120: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0121: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0122: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0123: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0124: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA:(1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0125: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi (5) vpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0126: PLOGI chkparm OK

DESCRIPTION: Received a PLOGI from a remote NPort and its Fibre Channel service parameters match this HBA. Request can be accepted.
DATA: (1) nlp_DID (2) nlp_state (3) nlp_flag (4) nlp_Rpi
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational.

lpfc_mes0127: ELS timeout

DESCRIPTION: An ELS IOCB command was posted to a ring and did not complete within ULP timeout seconds.
DATA: (1) elscmd (2) did (3) ulpcommand (4) iotag
SEVERITY: Error
LOG: Always
ACTION: If no ELS command is going through the adapter, reboot the system. If problem persists, contact Technical Support.

lpfc_mes0128: FDISC failed

DESCRIPTION: An FDISC failed
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Make sure the switch supports NPIV. If problem persists, contact Technical Support.

lpfc_mes0129: FDISC succeeded

DESCRIPTION: An FDISC succeeded
DATA: (1) DID
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action need, informational.

lpfc_mes0130: Xmit Fabric LOGO ELS command to fabric

DESCRIPTION: A vport is sending a LOGO for its FDISC to the switch.
DATA: (1) vport DID (2) vport vpi (3) vport state
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational

lpfc_mes131: Fabric LOGO Completes

DESCRIPTION: The vport's fabric LOGO failed to complete successfully.
DATA: (1) vport DID (2) vport VPI (3) ulpStatus (4) iocb word 4
SEVERITY: Information
LOG: LOG_ELS verbose
ACTION: No action needed, informational

lpfc_mes132: Fabric acknowledging NPIV <0,1>

DESCRIPTION: If the fabric supports NPIV, a 1 is printed. 0 if not.
DATA: (1) max vpi
SEVERITY: Information
LOG: LOG ELS verbose
ACTION: No action needed, informational. However, if the fabric NPIV support is incorrect, contact Emulex Technical Support.

lpfc_mes133: FLOGI failure

DESCRIPTION: An ELS FLOGI command timed out and CLEAR_LA cannot be issued.
DATA: mbox error reason code (0 means no resources)
SEVERITY: error
LOG: LOG ELS verbose
ACTION: No action needed, informational.

Link Discovery Events (0200 - 0299)

lpfc_mes0200: CONFIG_LINK bad hba state <hba_state>

DESCRIPTION: A CONFIG_LINK mbox command completed and the driver was not in the right state.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Software driver error. If this problem persists, report these errors to Technical Support.

lpfc_mes0201: Abort outstanding I/O on NPort <nlp_DID>

DESCRIPTION: All outstanding I/Os are cleaned up on the specified remote NPort.
DATA: (1) nlp_flag (2) nlp_state (3) nlp_rpi
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0202: Start Discovery on vpi <vpi>, hba state <hba_state>

DESCRIPTION: Device discovery / rediscovery after FLOGI, FAN, or RSCN has started.
DATA: (1) tmo (2) fc_plogi_cnt (3) fc_adisc_cnt (4) fc_rscn_id_cnt

SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0204: Create SCSI Target <tgt>

DESCRIPTION: A mapped FCP target was discovered and the driver has allocated resources for it.
DATA: None
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0205: Create SCSI LUN <lun> on Target <tgt>

DESCRIPTION: A LUN on a mapped FCP target was discovered and the driver has allocated resources for it.
DATA: None
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0206: Report Lun completes on NPort <nlp_DID>

DESCRIPTION: The driver issued a REPORT_LUN SCSI command to a FCP target and it completed.
DATA: (1) ulpStatus (2) rspStatus2 (3) rspStatus3 (4) nlp_failMask
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0207: Issue Report LUN on NPort <nlp_DID>

DESCRIPTION: The driver issued a REPORT_LUN SCSI command to an FCP target.
DATA: (1) nlp_failMask (2) nlp_state (3) nlp_rpi
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0208: Failmask change on NPort <nlp_DID> on vpi <vpi>

DESCRIPTION: An event was processed that indicates the driver may not be able to communicate with the remote NPort.
DATA: (1) nlp_failMask (2) bitmask (3) flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0209: RFT request completes ulpStatus <ulpStatus> CmdRsp <CmdRsp>

DESCRIPTION: A RFT request that was sent to the fabric completed.
DATA: (1) nlp_failMask (2) bitmask (3) flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0210: Continue discovery with <num_disc_nodes> ADISCs to go

DESCRIPTION: A device discovery is in progress.

DATA: (1) fc_adisc_cnt (2) fc_flag (3) vport->port_state
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0211: DSM IN vpi <vpi> event <evt> on NPort <nlp_DID> in state <cur_state>

DESCRIPTION: The driver Discovery State Machine is processing an event.
DATA: (1) nlp_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0212: DSM OUT vpi <vpi> state <rc> on NPort <nlp_DID>

DESCRIPTION: The driver Discovery State Machine completed processing an event.
DATA: (1) nlp_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0213: Reassign scsi id <sid> to NPort <nlp_DID>

DESCRIPTION: A previously bound FCP Target has been rediscovered and reassigned a SCSI ID.
DATA: (1) nlp_bind_type (2) nlp_flag (3) nlp_state (4) nlp_rpi
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0214: RSCN received

DESCRIPTION: An RSCN ELS command was received from a fabric.
DATA: (1) fc_flag (2) i (3) *lp (4) fc_rscn_id_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0215: RSCN processed

DESCRIPTION: An RSCN ELS command was received from a fabric and processed.
DATA: (1) fc_flag (2) cnt (3) fc_rscn_id_cnt (4) fc_ffstate
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0216: Assign scandown scsi id <sid> to NPort <nlp_DID>

DESCRIPTION: A SCSI ID is assigned due to BIND_ALPA.
DATA: (1) nlp_bind_type (2) nlp_flag (3) nlp_state (4) nlp_rpi
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0217: Unknown Identifier in RSCN payload

DESCRIPTION: Typically the identifier in the RSCN payload specifies a domain, area, or a specific NPort ID. If neither of these are specified, a warning will be recorded.

DATA: (1) didp->un.word
DETAIL: (1) Illegal identifier
SEVERITY: Error
LOG: Always
ACTION: Potential problem with the fabric. Check with the fabric vendor.

lpfc_mes0218: FDMI Request

DESCRIPTION: The driver is sending an FDMI request to the fabric.
DATA: (1) fc_flag (2) hba_state (3) cmdcode
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0219: Issue FDMI request failed

DESCRIPTION: Cannot issue FDMI request to HBA.
DATA: (1) cmdcode
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0220: FDMI rsp failed

DESCRIPTION: An error response was received to FDMI request.
DATA:(1) be16_to_cpu(fdmi_cmd)
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: The fabric does not support FDMI, check fabric configuration.

lpfc_mes0221: FAN timeout

DESCRIPTION: A link up event was received without the login bit set, so the driver waits E_D_TOV for the fabric to send a FAN. If no FAN is received, a FLOGI will be sent after the timeout.
DATA: None
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: None required. The driver recovers from this condition by issuing a FLOGI to the fabric.

lpfc_mes0222: Initial FLOGI timeout

DESCRIPTION: The driver sent the initial FLOGI to fabric and never got a response back.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0223: Timeout while waiting for NameServer login

DESCRIPTION: Our login request to the NameServer was not acknowledged within RATOV.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0224: NameServer Query timeout

DESCRIPTION: Node authentication timeout, node Discovery timeout. A NameServer Query to the fabric or discovery of reported remote NPorts is not acknowledged within R_A_TOV.
DATA: (1) fc_ns_retry (2) fc_max_ns_retry
SEVERITY: Error
LOG: Always
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0225: Device Discovery completes on vpi <vpi>

DESCRIPTION: This indicates successful completion of device (re)discovery after a link up.
DATA: None
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0226: Device discovery completion error

DESCRIPTION: This indicates that an uncorrectable error was encountered during device (re)discovery after a link up. Fibre Channel devices will not be accessible if this message is displayed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Reboot the system. If the problem persists, report the error to Technical Support. Run with verbose mode on for more details.

lpfc_mes0227: Node Authentication timeout

DESCRIPTION: The driver has lost track of what NPorts are being authenticated.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: None required. The driver should recover from this event.

lpfc_mes0228: CLEAR LA timeout

DESCRIPTION: The driver issued a CLEAR_LA that never completed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: None required. The driver should recover from this event.

lpfc_mes0229: Assign scsi ID <sid> to NPort <nlp_DID>

DESCRIPTION: The driver assigned a SCSI ID to a discovered mapped FCP target.
DATA: (1) nlp_bind_type (2) nlp_flag (3) nlp_state (4) nlp_rpi
SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: No action needed, informational.

lpfc_mes0230: Cannot assign scsi ID on NPort <nlp_DID>

DESCRIPTION: The driver cannot assign a SCSI ID to a discovered mapped FCP target.
DATA: (1) nlp_flag (2) nlp_state (3) nlp_rpi

SEVERITY: Information
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: Check persistent binding information.

lpfc_mes0231: RSCN timeout

DESCRIPTION: The driver has lost track of what NPorts have RSCNs pending.
DATA: (1) fc_ns_retry (2) fc_max_ns_retry
SEVERITY: Error
LOG: Always
ACTION: None required. The driver should recover from this event.

lpfc_mes0232: Continue discovery with <num_disc_nodes> PLOGIs to go

DESCRIPTION: Device discovery is in progress.
DATA: (1) fc_plogi_cnt (2) fc_flag (3) vport->port_state
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0234: ReDiscovery RSCN

DESCRIPTION: The number / type of RSCNs has forced the driver to go to the nameserver and re-discover all NPorts.
DATA: (1) fc_defer_rscn.q_cnt (2) fc_flag (3) hba_state
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0235: Deferred RSCN

DESCRIPTION: The driver has received multiple RSCNs and has deferred the processing of the most recent RSCN.
DATA: (1) fc_defer_rscn.q_cnt (2) fc_flag (3) hba_state
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0236: NameServer req

DESCRIPTION: The driver is issuing a NameServer request to the fabric.
DATA: (1) cmdcode (2) fc_flag (3) fc_rscn_id_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0237: Pending Link Event during Discovery

DESCRIPTION: Received link event during discovery. Causes discovery restart.
DATA: (1) hba_state (2) ulpIoTag (3) ulpStatus (4) ulpWord[4]
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: None required unless problem persists. If persistent, check cabling.

lpfc_mes0238: NameServer Rsp

DESCRIPTION: The driver received a NameServer response.
DATA: (1) Did (2) nlp_flag (3) fc_flag (4) fc_rscn_id_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0239: NameServer Rsp

DESCRIPTION: The driver received a NameServer response.
DATA: (1) Did (2) ndlp (3) fc_flag (4) fc_rscn_id_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0240: NameServer Rsp Error

DESCRIPTION: The driver received a NameServer response containing a status error.
DATA: (1) CommandResponse.bits.CmdRsp (2) ReasonCode (3) Explanation (4) fc_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0241: NameServer Rsp Error

DESCRIPTION: The driver received a NameServer response containing a status error.
DATA: (1) CommandResponse.bits.CmdRsp (2) ReasonCode (3) Explanation (4) fc_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0242: Abort outstanding I/O to the Fabric

DESCRIPTION: All outstanding I/Os to the fabric are cleaned up.
DATA: (1) Fabric_DID
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational

lpfc_mes0243: Issue FDMI request failed

DESCRIPTION: Cannot issue an FDMI request to HBA.
DATA: (1) cmdcode
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0244: Issue FDMI request failed

DESCRIPTION: Cannot issue an FDMI request to the HBA.
DATA: (1) cmdcode
SEVERITY: Information
LOG: LOG_Discovery verbose

ACTION: No action needed, informational.

lpfc_mes0245: ALPA based bind method used on an HBA which is in a nonloop topology

DESCRIPTION: ALPA-based bind method used on an HBA which is not in a loop topology.
DATA: (1) topology
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: Change the bind method configuration parameter of the HBA to 1(WWNN), 2(WWPN), or 3(DID)

lpfc_mes0246: RegLogin failed

DESCRIPTION: The firmware returned a failure for the specified RegLogin.
DATA: Did, mbxStatus, hbaState, vpi
SEVERITY: Error
LOG: Always
ACTION: This message indicates that the firmware could not do RegLogin for the specified DID. There may be a limitation on how many nodes an HBA can see.

lpfc_mes0247: Start Discovery Timer state <hba_state>

DESCRIPTION: Start the device discovery / RSCN rescue timer.
DATA: (1) tmo (2) disctmo (3) fc_plogi_cnt (4) fc_adisc_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0248: Cancel Discovery Timer state <hba_state>

DESCRIPTION: Cancel the device discovery / RSCN rescue timer.
DATA: (1) fc_flag (2) rc (3) fc_plogi_cnt (4) fc_adisc_cnt
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational.

lpfc_mes0249: Unsupported Addressing Mode <i> on NPort <nlp_DID> Tgt <sid>

DESCRIPTION: The driver issued a REPORT_LUN SCSI command to a FCP target.
DATA: None
SEVERITY: Warning
LOG: LOG_DISCOVERY | LOG_FCP verbose
ACTION: Check configuration of target. Driver will default to peripheral addressing mode.

lpfc_mes0250: EXPIRED nodev timer

DESCRIPTION: A device disappeared for greater than the configuration parameter (lpfc_nodev_tmo) seconds. All I/O associated with this device will fail.
DATA: (1) dev_did (2) scsi_id (3) rpi
SEVERITY: Error
LOG: Always
ACTION: Check physical connections to Fibre Channel network and the state of the remote PortID.

lpfc_mes0251: Unrecognized event type while flushing task list

DESCRIPTION: The driver found an unsupported event type when flushing the event list.
DATA: (1) evt (2) arg1 (3) arg2
SEVERITY: Error

LOG: Always
ACTION: If this condition persists, contact Emulex Technical Support.

lpfc_mes0252: Unrecognized event type found in task list

DESCRIPTION: An event posted to the task list wasn't recognized.
DATA: (1) evt (2) arg1 (3) arg2
SEVERITY: Error
LOG: Always
ACTION: If this condition persists, contact Emulex Technical Support.

lpfc_mes0256: Start nodev timer

DESCRIPTION: A target disappeared from the Fibre Channel network. If the target does not return within nodev-tmo timeout all I/O to the target will fail.
DATA: (1) nlp_DID (2) nlp_flag (3) nlp_state (4) nlp
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational

lpfc_mes0260: Stop Nodev timeout on NPort <nlp_DID>

DESCRIPTION: The FCP target was rediscovered and I/O can be resumed.
DATA: (1) nlp_DID (2) nlp_flag (3) nlp_state (4) nlp
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Check Fabric configuration. The driver recovers from this and continues.

lpfc_mes0261: FAN received

DESCRIPTION: A FAN was received from the fabric.
DATA: NONE
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, informational

lpfc_mes0262: NameServer Rsp Error

DESCRIPTION: The driver received a nameserver response containing a status error.
DATA: (1) CommandResponse.bits.CmdRsp (2) ReasonCode (3) Explanation (4) fc_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0263: NameServer Rsp Error

DESCRIPTION: The driver received a nameserver response containing a status error.
DATA: (1) CommandResponse.bits.CmdRsp (2) ReasonCode (3) Explanation (4) fc_flag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

lpfc_mes0265: Vport NameServer login: no memory

DESCRIPTION: Remote node memory allocation failed for logging into name server for a VPort.

DATA: (1) vid
SEVERITY: Error
LOG: Always
ACTION: Check the driver memory utilization and reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0266: Vport cannot issue NameServer login

DESCRIPTION: Issue PLOGI to VPort remote nameserver failed.
DATA: (1) vid
SEVERITY: Error
LOG: Always
ACTION: Check the fabric configuration and reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0267: Adapter message

DESCRIPTION: When the response IOCB carrys an unknown IOCB type and the upper layer command is an adapter message, it logs the adapter message returned from the adapter.
DATA: Message returned from the adapter
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, the driver will recover from this and continue with normal operation.

lpfc_mes0268: FCFI information: ...

DESCRIPTION: This message logs detailed FCF entry information upon the completion of a register FCFI mailbox command.
DATA: (1) idx, (2) fcfi, (3) rq_id0, (4) rq_id1, (5) rq_id2, (6) rq_id3, (7) tp_match0, (8) tp_mask0, (9) rctl_match0, (10) rctl_mask
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Information only, no action needed.

lpfc_mes0269: REG_VFI Data:...

DESCRIPTION: This messages logs the entire register VFI mailbox command payload.
DATA: REG_VFI mailbox payload word0 - word15
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: Information only, no action needed.

lpfc_mes0270: REG_VFI mbxStatus error

DESCRIPTION: Register VFI mailbox failed.
DATA: (1) mbxStatus, (2) HBA state, (3) RPI bitmap
SEVERITY: Error
LOG: Always
ACTION: Check the fabric configuration and reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0271: Issue Register VFI failed

DESCRIPTION: Issue register VFI mailbox failed.
DATA: (1) vpi, (2) err
SEVERITY: Error

LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0272: Failed to allocate mbox for READ_FCF cmd

DESCRIPTION: Failed to allocate memory for issuing READ_FCF mailbox command
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0273: Allocated DMA memory size:(%d) is less than the requested DMA memory size

DESCRIPTION: Failed to allocate DMA memory for issuing READ_FCF mailbox command.
DATA: (1) Allocated DMA memory size (2) Requested DMA memory size
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0274: Failed to get the non-embedded SGE virtual address

DESCRIPTION: Failed to get the SGE virtual address for the non-embedded mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. This is an unlikely error. If this condition persists, contact Emulex Technical Support.

lpfc_mes0275: Failed to create mbox command for READ_FCF cmd

DESCRIPTION: Failed to construct READ_FCF mailbox command for discovery data.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0276: Failed to create mbox command for READ_FCF cmd

DESCRIPTION: Failed to construct READ_FCF mailbox command for management plane query.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This is not part of the driver basic discovery process and only affects the management stack query to obtain FCF entries. No action needed.

lpfc_mes0277: Failed to get the non-embedded SGE virtual address

DESCRIPTION: Failed to get the SGE virtual address for the non-embedded mailbox command for management-plane query.
DATA: None
SEVERITY: Error
LOG: Always

ACTION: This is not part of the driver basic discovery process and only affects the management stack query to obtain FCF entries. No action needed.

lpfc_mes0278: READ_FCF_RECORD mailbox failed

DESCRIPTION: Issue READ_FCF_RECORD mailbox returned status failure for management-plane query.
DATA: (1) status, (2) add_status
SEVERITY: Error
LOG: Always
ACTION: This is not part of the driver basic discovery process and only affects the management stack query to obtain FCF entries. No action needed.

lpfc_mes0279: UNREG_VFI mbxStatus error

DESCRIPTION: Unregister VFI mailbox command returned with failure status.
DATA: (1) mbxStatus, (2) HBA state
SEVERITY: Error
LOG: Always
ACTION: Check fabric and interface configuration.

lpfc_mes0280: UNREG_FCFI mbxStatus error

DESCRIPTION: Unregister FCFI mailbox command returned with failure status.
DATA: (1) mbxStatus, (2) HBA state
SEVERITY: Error
LOG: Always
ACTION: Check fabric and interface configuration.

lpfc_mes0281: Failed to allocate mbox for UNREG_VFI cmd

DESCRIPTION: Failed to allocate memory for issuing UNREG_VFI mailbox command.
DATA: (1) HBA state
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0282: Failed to issue UNREG_VFI mailbox command

DESCRIPTION: Failed to issue UNREG_VFI mailbox command to the HBA.
DATA: (1) rc, (2) HBA state
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0283: Failed to allocate mbox for UNREG_FCFI cmd

DESCRIPTION: Failed to allocate memory for issuing UNREG_FCFI mailbox command.
DATA: (1) HBA state
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0284: Failed to issue UNREG_FCFI mailbox command

DESCRIPTION: Failed to issue UNREG_FCFI mailbox command to the HBA.
DATA: (1) rc, (2) HBA state
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0285: UNREG_FCFI failed to read FCF record

DESCRIPTION: UNREG_FCFI failed to read FCF record from HBA.
DATA: HBA state
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0286: Failed to allocate init_vpi mailbox

DESCRIPTION: Failed to allocate memory for issuing init_vpi mailbox command.
DATA: (1) vpi
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0287: Failed to issue init_vpi mailbox

DESCRIPTION: Failed to issue init_vpi mailbox command.
DATA: (1) vpi
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Emulex Technical Support.

lpfc_mes0288: No NPIV Fabric support

DESCRIPTION: The switch fabric does not support NPIV.
DATA: (1) vpi
SEVERITY: Error
LOG: Always
ACTION: Check the fabric capability and configuration for NPIV support.

lpfc_mes0289: Adapter message

DESCRIPTION: When the response IOCB carrys an unknown IOCB type and the upper layer command is an adapter message, it logs the adapter message returned from the adapter.
DATA: Message returned from the adapter
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: No action needed, the driver will recover from this and continue with normal operation.

Mailbox Events (0300 - 0399)

lpfc_mes0300: READ_LA: no buffers

DESCRIPTION: The driver attempted to issue a READ_LA mailbox command to the HBA, but there were no buffers available.
DATA: None
SEVERITY: Warning
LOG: LOG_MBOX verbose
ACTION: This message indicates: (1) a possible lack of memory resources. Try increasing the lpfc 'num_bufs' configuration parameter to allocate more buffers. (2) A possible driver buffer management problem. If this problem persists, report the error to Technical Support.

lpfc_mes0301: READ_SPARAM: no buffers

DESCRIPTION: The driver attempted to issue a READ_SPARAM mailbox command to the HBA, but there were no buffers available.
DATA: None
SEVERITY: Warning
LOG: LOG_MBOX verbose
ACTION: This message indicates: (1) a possible lack of memory resources. Try increasing the lpfc 'num_bufs' configuration parameter to allocate more buffers. (2) A possible driver buffer management problem. If the problem persists, report the error to Technical Support.

lpfc_mes0302: REG_LOGIN: no buffers

DESCRIPTION: The driver attempted to issue a REG_LOGIN mailbox command to the HBA, but there were no buffers available.
DATA: (1) did (2) rpi (3) vpi (4) flag
SEVERITY: Warning
LOG: LOG_MBOX verbose
ACTION: This message indicates: (1) a possible lack of memory resources. Try increasing the lpfc 'num_bufs' configuration parameter to allocate more buffers. (2) A possible driver buffer management problem. If the problem persists, report the error to Technical Support.

lpfc_mes0304: Stray mailbox interrupt, mbxCommand <cmd> mbxStatus <status>

DESCRIPTION: Received a mailbox completion interrupt and there are no outstanding mailbox commands.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0305: Mbox cmd cmpl error - RETRYing

DESCRIPTION: A mailbox command completed with an error status that causes the driver to reissue the mailbox command.
DATA: (1) mbxCommand (2) mbxStatus (3) word1 (4) hba_state
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0306: CONFIG_LINK mbxStatus error <mbxStatus> HBA state <hba_state>

DESCRIPTION: The driver issued a CONFIG_LINK mbox command to the HBA that failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a firmware or hardware problem. Report these errors to Technical Support.

lpfc_mes0307: Mailbox cmd <cmd> cmpl <mbox_cmpl> <pmbox> <varWord> <varWord> <varWord> <varWord> <varWord> <varWord> <varWord> <varWord>

DESCRIPTION: A mailbox command completed.
DATA: IOCTL opcode, varWord[0] - varWord[7]
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0308: Mbox cmd issue - BUSY

DESCRIPTION: The driver attempted to issue a mailbox command while the mailbox was busy processing the previous command. The processing of the new command will be deferred until the mailbox becomes available.
DATA: (1) mbxCommand (2) hba_state (3) sli_flag (4) flag
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0309: Mailbox cmd <cmd> issue

DESCRIPTION: The driver is in the process of issuing a mailbox command.
DATA: (1) hba_state (2) sli_flag (3) flag
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0310: Mailbox command <cmd> timeout

DESCRIPTION: A mailbox command was posted to the adapter and did not complete within 30 seconds.
DATA: (1) hba_state (2) sli_flag (3) mbox_active
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver or firmware problem. If no I/O is going through the adapter, reboot the system. If the problem persists, report the error to Technical Support.

lpfc_mes0311: Mailbox command <cmd> cannot issue

DESCRIPTION: The driver is in the wrong state to issue the specified command.
DATA: (1) hba_state (2) sli_flag (3) flag
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0312: Ring <ringno> handler: portRspPut <portRspPut> is bigger then rsp ring <portRspMax>

DESCRIPTION: The port rsp ring put index is larger than the size of the rsp ring.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0313: Ring <ringno> handler: unexpected Rctl <Rctl> Type <Type> received

DESCRIPTION: The Rctl/Type of a received frame did not match any for the configured masks for the specified ring.
DATA: (1) ring number (2) rctl (3) type
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0314: Ring <ringno> issue: portCmdGet <portCmdGet> is bigger then cmd ring <portCmdMax>

DESCRIPTION: The port cmd ring get index is greater than the size of cmd ring.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0315: Ring <ringno> issue: portCmdGet <portCmdGet> is bigger then cmd ring <portCmdMax>

DESCRIPTION: The port cmd ring get index is greater than the size of cmd ring.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0316: Cmd ring <ringno> put: iotag <iotag> greater then configured max <fast_iotag> wd0 <icmd>

DESCRIPTION: The assigned I/O iotag is greater than the allowed maximum.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0317: Rsp ring <ringno> get: iotag <iotag> greater then configured max <fast_iotag> wd0 <irsp>

DESCRIPTION: The assigned I/O iotag is greater than the maximum allowed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0318: Outstanding I/O count for ring <ringno> is at max <fast_iotag>

DESCRIPTION: An I/O tag cannot be assigned because none are available. The maximum number of allowed I/Os are currently outstanding.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This message indicates the adapter HBA I/O queue is full. Typically this happens when heavy I/O is running on a low-end (3 digit) adapter. Emulex suggests you upgrade to a higher-end adapter.

lpfc_mes0319: The driver issued a READ_SPARAM mbox command to the HBA that failed.

DESCRIPTION: The driver issued a READ_SPARAM mbox command to the HBA that failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a firmware or hardware problem. Report these errors to Technical Support.

lpfc_mes0320: CLEAR_LA mbxStatus error <mbxStatus> hba state <hba_state>

DESCRIPTION: The driver issued a CLEAR_LA mbox command to the HBA that failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a firmware or hardware problem. Report these errors to Technical Support.

lpfc_mes0321: Unknown IOCB command

DESCRIPTION: Received an unknown IOCB command completion.
DATA: (1) ulpCommand (2) ulpStatus (3) ulpIoTag (4) ulpContext)
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver or firmware problem. If these problems persist, report these errors to Technical Support.

lpfc_mes0322: Ring <ringno> handler: unexpected completion IoTag <IoTag>

DESCRIPTION: The driver could not find a matching command for the completion received on the specified ring.
DATA: (1) ulpStatus (2) ulpWord[4] (3) ulpCommand (4) ulpContext
SEVERITY: Warning
LOG: LPFC_SLI verbose
ACTION: This warning is benign during ELS disturbances and unexpected for FCP I/O. In the absence of any SAN disturbances, this error could indicate a software driver or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0323: Unknown Mailbox command <cmd> Cmpl

DESCRIPTION: An unknown mailbox command completed.
DATA: (1) Mailbox Command (2) mbStatus
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver, firmware, or hardware problem. Report these errors to Technical Support.

lpfc_mes0324: Adapter initialization error, mbxCmd <cmd> READ_NVPARM, mbxStatus <status>

DESCRIPTION: A read nvparams mailbox command failed during port configuration.
DATA:(1) Mailbox Command (2) Mailbox Command Status
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. Report these errors to Technical Support.

lpfc_mes0325: Rsp ring <ringno> error: IOCB

DESCRIPTION: Received an IOCB response error.
DATA: (1) wd0 (2) wd1 (3) wd2 (4) wd3 (5) wd4 (6) wd5 (7) wd6 (8) wd7
SEVERITY: Warning
LOG: LOG_SLI verbose
ACTION: This error could indicate a software driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes0326: Reset HBA

DESCRIPTION: The HBA has been reset.
DATA: (1) hba_state (2) sli_flag
SEVERITY: Information
LOG: LOG_SLI verbose
ACTION: No action needed, informational

lpfc_mes0327: High priority IOCB cmd x%x completed in %d jiffies

DESCRIPTION: Make all high priority IOCBs completion times available to console.
DATA: (1) ulpCommand (2) wait time in jiffies
SEVERITY: Information
LOG: LOG_SLI
ACTION: No action needed, informational

lpfc_mes0328: High priority IOCB cmd x%x exceeded allotted wait time of %d jiffies

DESCRIPTION: The driver didn't get a completion for a high priority IOCB within the wait time allotted.
DATA: (1) ulpCommand (2) allotted wait time in jiffies
SEVERITY: Error
LOG: Always
ACTION: Depending on the ulpCommand and the associated task command, there could be an oversubscription condition in the SAN. If problems persist, report these error to Technical Support.

lpfc_mes0329: Ring %d handler: unexpected ASYNC_STATUS evt_code 0x%x

DESCRIPTION: The port has issued an unexpected asynchronous event code to the driver.
DATA: IOCB[0-15]
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a driver or firmware problem. If problems persist, report these error to Technical Support.

lpfc_mes0330: Command IOCB lookup miss on Fast lookup array

DESCRIPTION: The IoTag provided did not result in a valid command IOCB in the fast lookup array.
DATA: (1) IoTag (2) Ring number
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a driver or firmware problem. If problems persist, report these error to Technical Support.

lpfc_mes0331: Ring %d handler: unexpected ASYNC_STATUS iocb received evt_code 0x%x

DESCRIPTION: The port has issued an unexpected asynchronous event code to the driver.
DATA: IOCB[0-15]
SEVERITY: Error
LOG: LOG_SLI
ACTION: This error could indicate a hardware/firmware problem. If problems persist, report these error to Technical Support.

lpfc_mes0332: REG_VPI failed

DESCRIPTION: reg_rpi mailbox failed
DATA: (1) status
SEVERITY: Error
LOG: Always
ACTION: Delete VPorts or increase lpfc_max_vpi

lpfc_mes0333: UNREG_VPI failed

DESCRIPTION: Unreg_vpi mailbox failed
DATA: (1) status
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a driver or firmware problem. If problems persist, report these error to Technical Support.

lpfc_mes0339: Port temp, %ld Celsius critical. Corrective action required

DESCRIPTION: The HBA port is at a critical temperature and must be cooled down.
DATA: (1) temperature
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or system problem. Stop all traffic and check system fans. If problems persist, report these errors to Technical Support.

lpfc_mes0340: Port temp, %ld Celsius, has returned to normal

DESCRIPTION: The HBA port temperature has decreased to a normal value.
DATA: (1) temperature
SEVERITY: Information
LOG: LOG_TEMP verbose
ACTION: No action needed. Informational.

lpfc_mes0341: Restart HBA

DESCRIPTION: The HBA has been restarted.
DATA: (1) HBA_state (2) sli_flag
SEVERITY: Information
LOG: LOG_SLI verbose
ACTION: No action needed.

lpfc_mes0342: Restart HBA

DESCRIPTION: The HBA has been killed.
DATA: (1) HBA_state (2) sli_flag
SEVERITY: Information
LOG: LOG_SLI verbose
ACTION: No action needed. Informational.

lpfc_mes0343: Mailbox cmd <x%x> Status <x%x> Data <x%x>

DESCRIPTION: Results of read rcoe parameter mbox command.
DATA: MBOX [0-16], [50] mcqe.word0, mcqe_tag0, mcqe_tag1, mcqe.trailer
SEVERITY: Information
LOG: LOG_MBOX verbose
ACTION: No action needed, informational.

lpfc_mes0344: Restart HBA PCI function

DESCRIPTION: The HBA PCI function has been killed.
DATA: (1) HBA_state (2) sli_flag
SEVERITY: Information
LOG: LOG_SLI verbose
ACTION: No action needed, informational.

lpfc_mes0345: Synchronous IOCB timeout: %d seconds

DESCRIPTION: A synchronous IOCB has not completed.
DATA: None
SEVERITY: Warning
LOG: Always
ACTION: No action needed, informational.

lpfc_mes0346: Mailbox fail cmd <opcode> stat <mbox_stat> <mcqe_stat>

DESCRIPTION: A mailbox command failed.
DATA: varWord[0] - varWord[7]
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver or firmware problem. If this problem persists, report these errors to Technical Support.

lpfc_mes0347: Mailbox cmd x%x <x%x> <x%x> sent, data:

DESCRIPTION: Issue a mailbox command
DATA: varWord[0] - varWord[7]
SEVERITY: Information
LOG: LOG_MBOX
ACTION: No action needed, informational.

lpfc_mes0348: Mailbox cmd <opcode> cmpl

DESCRIPTION: A mailbox command completed.
DATA: varWord[0] - varWord[7]
SEVERITY: Information
LOG: LOG_MBOX
ACTION: No action needed, informational.

lpfc_mes0349: Mailbox sync cmd <opcode> <ioctl> cmpl

DESCRIPTION: A synchronous mailbox command completed.
DATA: varWord[0] - varWord[12], cqe[0] - cqe[3]
SEVERITY: Information
LOG: LOG_MBOX
ACTION: No action needed, informational.

lpfc_mes0350: REG_FCFI mbx returned an error

DESCRIPTION: REG_FCFI mbx returned an error.
DATA: (1) mbxStatus (2) vport_state
SEVERITY: Error
LOG: LOG_MBOX
ACTION: No action needed.

lpfc_mes0351: Mailbox command timed out

DESCRIPTION: Indicates mailbox command timeout for SLI-4 HBA and no action was taken by the driver.
DATA: (1) mbxCmd
SEVERITY: Error
LOG: Always
ACTION: If the system stopped working after this message was logged, reboot the system. Otherwise, no action is needed. If the problem persists, contact Emulex Technical Support.

Initialization Events (0400 - 0499)

lpfc_mes0400: lpfc_740 load failed: <reason>

DESCRIPTION: An lpfc_740 driver instance failed to load.
DATA: <function> <reason> <value>
SEVERITY: Information
LOG: LOG_INIT
ACTION: No action needed, informational.

lpfc_mes0401: Detected Emulex PCI-X HBA

DESCRIPTION: An Emulex PCI-X HBA was detected during initialization.
DATA: (1) jedec_id (2) pci device id
Severity: Information
Log: LOG_INIT verbose
Action: No action needed, informational.

lpfc_mes0402: Max DMA Length mailbox command failed

DESCRIPTION: The driver could not set the limit the max DMA length.
DATA: (1) mbxCommand (2) mbxStatus
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: Check the FW revision and contact Technical Support.

lpfc_mes0403: Max DMA Length mailbox command successful

DESCRIPTION: The driver successfully set the max DMA length.
DATA: (1) mbxCommand (2) mbxStatus
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0404: HBA setup complete - SLI rev <sli_rev>

DESCRIPTION: The driver finished configuring the HBA. Final setup values are written to the console.
DATA: (1) max_vpi (2) sli-3_options
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0405: Service Level Interface (SLI) selected

DESCRIPTION: A CONFIG_PORT (SLI) mailbox command was issued.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0406: HBA Heartbeat disabled

DESCRIPTION: The driver will issue heartbeat messages to the HBA.
DATA: None
SEVERITY: Information
LOG: LOG_INIT non-maskable
ACTION: No action needed, informational.

lpfc_mes0407: HBA reset disabled

DESCRIPTION: On error, the driver will not reset the HBA.
DATA: None
SEVERITY: Information
LOG: LOG_INIT non-maskable
ACTION: No action needed, informational.

lpfc_mes0410: Cannot find virtual addr for mapped buf on ring <num>

DESCRIPTION: The driver cannot find the specified buffer in its mapping table. Therefore, the driver cannot find the virtual address needed to access the data.
DATA: (1) first (2) q_first (3) q_last (4) q_cnt
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0411: fcp_bind_method is 4 with Persistent binding - ignoring fcp_bind_method

DESCRIPTION: The configuration parameter for fcp_bind_method conflicts with Persistent binding parameter.
DATA: (1) a_current (2) fcp_mapping
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0412: Scan-down is out of range - ignoring scan-down

DESCRIPTION: The configuration parameter for scan-down is out of range.
DATA: (1) clp[CFG_SCAN_DOWN].a_current (2) fcp_mapping
SEVERITY: Error
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0413: Configuration parameter out of range, resetting to default value

DESCRIPTION: User is attempting to set a configuration parameter to a value not supported by the driver. Resetting the configuration parameter to the default value.
DATA: (1) a_string (2) a_low (3) a_hi (4) a_default
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0430: WWPN binding entry <num>: Syntax error code <code>

DESCRIPTION: A syntax error occurred while parsing WWPN binding configuration information.
DATA: None
Detail: Binding syntax error codes
0 FC_SYNTAX_OK
1 FC_SYNTAX_OK_BUT_NOT_THIS_BRD
2 FC_SYNTAX_ERR_ASC_CONVERT
3 FC_SYNTAX_ERR_EXP_COLON
4 FC_SYNTAX_ERR_EXP_LPFC
5 FC_SYNTAX_ERR_INV_LPFC_NUM
6 FC_SYNTAX_ERR_EXP_T
7 FC_SYNTAX_ERR_INV_TARGET_NUM
8 FC_SYNTAX_ERR_EXP_D
9 FC_SYNTAX_ERR_INV_DEVICE_NUM
10 FC_SYNTAX_ERR_INV_RRATIO_NUM
11 FC_SYNTAX_ERR_EXP_NULL_TERM
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0431: WWNN binding entry <num>: Syntax error code <code>

DESCRIPTION: A syntax error occurred while parsing WWNN binding configuration information.
DATA: None
Detail: Binding syntax error codes
0 FC_SYNTAX_OK
1 FC_SYNTAX_OK_BUT_NOT_THIS_BRD
2 FC_SYNTAX_ERR_ASC_CONVERT
3 FC_SYNTAX_ERR_EXP_COLON
4 FC_SYNTAX_ERR_EXP_LPFC
5 FC_SYNTAX_ERR_INV_LPFC_NUM
6 FC_SYNTAX_ERR_EXP_T
7 FC_SYNTAX_ERR_INV_TARGET_NUM
8 FC_SYNTAX_ERR_EXP_D
9 FC_SYNTAX_ERR_INV_DEVICE_NUM
10 FC_SYNTAX_ERR_INV_RRATIO_NUM
11 FC_SYNTAX_ERR_EXP_NULL_TERM
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0432: WWPN binding entry: node table full

DESCRIPTION: More bindings entries were configured than the driver can handle.
DATA: None
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file so that fewer bindings are configured.

lpfc_mes0433: WWNN binding entry: node table full

DESCRIPTION: More bindings entries were configured than the driver can handle.
DATA: None
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file so that fewer bindings are configured.

lpfc_mes0434: DID binding entry <num>: Syntax error code <code>

DESCRIPTION: A syntax error occurred while parsing DID binding configuration information.
DATA: None
Detail: Binding syntax error codes
0 FC_SYNTAX_OK
1 FC_SYNTAX_OK_BUT_NOT_THIS_BRD
2 FC_SYNTAX_ERR_ASC_CONVERT
3 FC_SYNTAX_ERR_EXP_COLON
4 FC_SYNTAX_ERR_EXP_LPFC
5 FC_SYNTAX_ERR_INV_LPFC_NUM
6 FC_SYNTAX_ERR_EXP_T
7 FC_SYNTAX_ERR_INV_TARGET_NUM
8 FC_SYNTAX_ERR_EXP_D
9 FC_SYNTAX_ERR_INV_DEVICE_NUM
10 FC_SYNTAX_ERR_INV_RRATIO_NUM
11 FC_SYNTAX_ERR_EXP_NULL_TERM
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes0435: DID binding entry: node table full

DESCRIPTION: More bindings entries were configured than the driver can handle.
DATA: None
SEVERITY: Error config
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file so that fewer bindings are configured.

lpfc_mes0436: Adapter failed to init, timeout, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0437: Adapter failed to init, chipset, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0438: Adapter failed to init, chipset, status reg <status>

DESCRIPTION: The adapter failed during powerup diagnostics after it was reset.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0439: Adapter failed to init, mbxCmd <cmd> READ_REV, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing a READ_REV mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0440: Adapter failed to init, mbxCmd <cmd> READ_REV, detected outdated firmware

DESCRIPTION: Outdated firmware was detected during initialization.
DATA: (1) read_rev_reset
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. Update the firmware. If the problem persists, report the error to Technical Support.

lpfc_mes0441: VPD not present on adapter, mbxCmd <cmd> DUMP VPD, mbxStatus <status>

DESCRIPTION: The DUMP_VPD mailbox command failed.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0442: Adapter failed to init, mbxCmd <cmd> CONFIG_PORT, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing a CONFIG_PORT mailbox command.
DATA: (1) hbainit
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0443: Failed to attach to lpfc adapter: bus <bus> device <device> irq <irq>

DESCRIPTION: An lpfc adapter was found in the PCI config but the lpfc driver failed to attach.
DATA: (1) bus (2) device (3) irq
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0446: Adapter failed to init, mbxCmd <cmd> CFG_RING, mbxStatus <status>, ring <num>

DESCRIPTION: Adapter initialization failed when issuing a CFG_RING mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0447: Adapter failed init, mbxCmd <cmd> CONFIG_LINK mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing a CONFIG_LINK mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0448: Adapter failed to init, mbxCmd <cmd> READ_SPARM, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing a READ_SPARM mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0451: Enable interrupt handler failed

DESCRIPTION: The driver attempted to register the HBA interrupt service routine with the host operating system, but failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or driver problem. If the problem persists, report the error to Technical Support.

lpfc_mes0452: Adapter failed to init, mbxCmd <cmd> CONFIG_HBQ, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing CONFIG_HBQ mailbox command.
DATA: (1) mbx_Command (2) mbx_Status (3) hbq entry
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0453: Adapter failed to init, mbxCmd <cmd> READ_CONFIG, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing a READ_CONFIG mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0454: Adapter failed to init, mbxCmd <cmd> INIT_LINK, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing an INIT_LINK mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0455: Vital Product

DESCRIPTION: Vital product data (VPD) contained in the HBA flash.
DATA: (1) vpd[0] (2) vpd[1] (3) vpd[2] (4) vpd[3]
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0456: Adapter failed to issue ASYNCEVT_ENABLE mbox

DESCRIPTION: The HBA port failed to enable asynchronous mailbox events.
DATA: (1) mailbox response status
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0457: Adapter Hardware Error

DESCRIPTION: The driver received an interrupt indicating a possible hardware problem.
Data: (1) status (2) status1 (3) status2
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If the problem persists, report the error to Technical Support.

lpfc_mes0458: Bring adapter online

DESCRIPTION: The FC driver has received a request to bring the adapter online. This may occur when running lputil.
DATA: None
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes0459: HBA heartbeat failure

DESCRIPTION: The HBA has not responded to a heartbeat command in the time allotted.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0460: Bring adapter offline

DESCRIPTION: The FC driver has received a request to bring the adapter offline. This may occur when running lputil.
DATA: None
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes0462: Too many cmd / rsp ring entries in SLI-2 SLIM

DESCRIPTION: The configuration parameter for Scan-down is out of range.
DATA: (1) totiocb (2) MAX_SLI2_IOCB
SEVERITY: Error
LOG: Always
ACTION: This is a software driver error. If this problem persists, report these errors to Technical Support.

lpfc_mes0463: Port max temp exceeded <temp>, taking port offline

DESCRIPTION: The HBA port is in an overtemperature condition and must be shutdown.
DATA: (1) status (2) status1 (3) status2
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0464: Adapter failed to init. Retry in SLI-2 mode. mbxCmd <cmd> CONFIG_PORT, mbxStatus <status>

DESCRIPTION: Adapter initialization failed when issuing CONFIG_PORT mailbox command.
DATA: (1) hbainit
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If this problem persists, report these errors to Technical Support.

lpfc_mes0465: Adapter failed to init, retry. mbxCmd <cmd> CONFIG_PORT, mbxstatus <status>

DESCRIPTION: Adapter initialization failed when issuing a CONFIG_PORT mailbox command.
DATA: (1)hbainit
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0466: Defer error condition. har <Host Att Reg> hsr <Host Stat Reg>

DESCRIPTION: Defer error condition detected.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error indicates that this port is temporarily going offline. If problems persist, report these errors to Technical Support.

lpfc_mes0467: Defer error condition cleared. har <Host Att Reg> hsr <Host Stat Reg>

DESCRIPTION: Defer error condition cleared.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error indicates that this port is no longer offline due to the defer error condition. Recovery will be attempted. If problems persist, report these errors to Technical Support.

lpfc_mes0468: Error during rpi post operation

DESCRIPTION: Unable to create an RPI header.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0469: Unsupported EQ count of <%d>

DESCRIPTION: The event queue cannot be initialized with the specified count.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0470: EQ_CREATE mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be created.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0471: Unsupported CQ count of %d

DESCRIPTION: The event queue cannot be initialized with the specified count.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0472: CQ_CREATE mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be created.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0473: Unsupported MQ count of %d

DESCRIPTION: The queue cannot be initialized with the specified count.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0474: MQ_CREATE mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be created.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0475: Unsupported RQ count of %d at %d

DESCRIPTION: The queue cannot be initialized with the specified count.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0476: RQ_CREATE mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be initialized with the specified count.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0477: EQ_DESTROY mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be destroyed, mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0478: CQ_DESTROY mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be destroyed, mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0479: MQ_DESTROY mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be destroyed, mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0480: WQ_DESTROY mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be destroyed, mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0481: RQ_DESTROY mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be destroyed, mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0482: WQ_CREATE mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The queue cannot be created.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0483: POST_SGL mailbox failed: stat <x%x> add_stat <x%x> mbx_stat <x%x>

DESCRIPTION: The POST_SGL mailbox command failed.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0484: READ_REV Error. SLI Level %d

DESCRIPTION: The SLI Level should be SLI-4 and FCoE should be supported.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0485: Adapter firmware version <s> fcphHi:<x> fcphLo:<x> flHi:<x> flLo:<x>

DESCRIPTION: Adapter firmware version is logged.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0486: No support for fcpi mode

DESCRIPTION: The port must support FCP initiator mode.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0487: Feature Mismatch

DESCRIPTION: The port cannot support the host's requested features.
DATA: (1) REQUEST_FEATURES Word 2 (2) REQUEST_FEATURES Word 3 (3) max_vpi
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0488: READ_SPARAM command failed

DESCRIPTION: The port must support FCP initiator mode.
DATA: (1) Issue status (2) mbxStatus
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0496: SLI_FUNCTION_RESET mailbox failed

DESCRIPTION: Mailbox command to reset function failed.
DATA: (1) shdr_status (2) shdr_add_status (3) rc
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0497: Failure HBA POST

DESCRIPTION: HBA POST failure.
DATA: (1) sta_reg (2) perr (3) sfi (4) nip (5) ipc (6) xrom (7) dl (8) pstatus
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes0498: Device Info: ChipType=<val>, SLIRev=<val>, FeatureL1=<val>, FeatureL2=<val>

DESCRIPTION: Device information reported by adapter.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: No action needed, informational.

lpfc_mes0499: HBA Unrecoverable error

DESCRIPTION: HBA POST failure.
DATA: (1) uerr_lo_reg (2) uerr_hi_reg (3) ue_mask_lo_reg (4) ue_mask_hi_reg
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

IP Log Events (0600 - 0699)

lpfc_mes0600: FARP-RSP received from DID <did>

DESCRIPTION: A FARP ELS command response was received.
DATA: None
SEVERITY: Information
LOG: LOG_IP verbose
ACTION: No action needed, informational.

lpfc_mes0601: FARP-REQ received from DID <did>

DESCRIPTION: A FARP ELS command request was received.
DATA: None
SEVERITY: Information
LOG: LOG_IP verbose
ACTION: No action needed, informational.

lpfc_mes0610: FARP Request sent to remote DID

DESCRIPTION: A send to a remote IP address has no node in the driver’s nodelists. Send a FARP request to obtain the node’s HW address.
DATA: (1) IEEE[0] (2) IEEE[1] (3) IEEE[2] (4) IEEE[3] (5) IEEE[4] (6) IEEE[5]
SEVERITY: Information
LOG: LOG_IP verbose
ACTION: Issue FARP and wait for PLOGI from remote node.

FCP Traffic History (0700 - 0799)

lpfc_mes0701: Issue Abort Task Set to TGT <num> LUN <num>

DESCRIPTION: The SCSI layer detected that it needs to abort all I/O to a specific device. This results in an FCP Task Management command to abort the I/O in progress.
DATA: (1) scsi_id (2) lun_id (3) rpi (4) flags
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: Check the state of the device in question.

lpfc_mes0702: Issue Target Reset to TGT <num>

DESCRIPTION: The SCSI layer detected that it needs to abort all I/O to a specific target. This results in an FCP Task Management command to abort the I/O in progress.
DATA: (1) rpi (2) flags
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: Check the state of the target in question.

lpfc_mes0703: Issue LUN Reset to TGT <num> LUN <num>

DESCRIPTION: The SCSI layer detected that it must abort all I/O to a specific device. This results in an FCP Task Management command to abort the I/O in progress.
DATA: (1) scsi_id (2) lun_id (3) rpi (4) flags
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: Check the state of the device in question.

lpfc_mes0712: SCSI layer issued abort device

DESCRIPTION: The SCSI layer is requesting the driver to abort I/O to a specific device.
DATA: (1) target (2) lun (3) lpfc_cmd (4) cur_iocbq
SEVERITY: Error
LOG: Always
ACTION: Check the state of the device in question.

lpfc_mes0714: SCSI layer issued bus reset

DESCRIPTION: The SCSI layer is requesting the driver to abort all I/Os to all targets on this HBA.
DATA: (1) tgt (2) lun (3) rc - success/failure
SEVERITY: Error
LOG: Always
ACTION: Check the state of the targets in question.

lpfc_mes0716: FCP Readl Underrun, expected <len>, residual <resid>

DESCRIPTION: An FCP device provided less data than was requested.
DATA: (1) fcpi_parm (2) cmnd[0] (3) underflow
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0717: FCP command <cmd> residual underrun converted to error

DESCRIPTION: The driver converted this underrun condition to an error based on the underflow field in the SCSI command.
DATA: (1) len (2) resid (3) underflow
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0729: FCP cmd <cmnd> failed <target>/<lun>

DESCRIPTION: The specified device failed an FCP command.
DATA: (1) cmnd (2) scsi_id (3) lun_id (4) status (5) result (6) iotag
SEVERITY: Warning
LOG: LOG_FCP verbose
ACTION: Check the state of the target in question.

lpfc_mes0730: FCP command failed: RSP

DESCRIPTION: The FCP command failed with a response error.
DATA: (1) Status2 (2) Status3 (3) ResId (4) SnsLen (5) RspLen (6) Info3
SEVERITY: Warning
LOG: LOG_FCP verbose
ACTION: Check the state of the target in question.

lpfc_mes0734: FCP read check error

DESCRIPTION: The issued FCP command returned a read check error.
DATA: (1) fcpDl (2) rspResId (3) fcpi_parm (4) cdb[0]
SEVERITY: Warning
LOG: LOG_FCP verbose
ACTION: Check the state of the target in question.

lpfc_mes0735: FCP read check error with check condition

DESCRIPTION: The issued FCP command returned a read check error and a check condition.
DATA: (1) fcpDl (2) rspResId (3) fcpi_parm (4) cdb[0]
SEVERITY: Warning
LOG: LOG_FCP verbose
ACTION: Check the state of the target in question.

lpfc_mes0737: <ASC ASCQ> Check condition received

DESCRIPTION: The issued FCP command resulted in a check condition.
DATA: (1) CFG_CHK_COND_ERR (2) CFG_DELAY_RSP_ERR (3) *lp
SEVERITY: Information
LOG: LOG_FCP | LOG_CHK_COND verbose
ACTION: None required.

lpfc_mes0738: Scheduler received Queue Full status from FCP device <tgt> <lun>

DESCRIPTION: The scheduler received a Queue Full error status from the specified FCP device.
DATA: (1) qfull_retry_count (2) qfull_retries (3) currentOutstanding (4) maxOutstanding
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0747: Completed target reset

DESCRIPTION: Target reset completed.
DATA: (1) tgt_id (2) lun_id (3) Status
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0748: Completed LUN reset

DESCRIPTION: LUN reset completed.
DATA: (1) tgt_id (2) lun_id (3) Status (4) command frag
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0749: Completed abort task set

DESCRIPTION: Abort task set completed.
DATA: (1) tgt_id (2) lun_id (3) cmpl time mS
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0750: Failed Abort Task Set Data: x%x x%ld

DESCRIPTION: Abort Task Set completed.
DATA: (1) tgt id (2) lun id (3) timeout mS
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes0754: SCSI timeout

DESCRIPTION: An FCP IOCB command was posted to a ring and did not complete within ULP timeout seconds.
DATA:(1) did (2) sid (3) command (4) iotag
SEVERITY: Error
LOG: Always
ACTION: If I/O is not going through the adapter, reboot the system. If problems persist, report these errors to Technical Support.

lpfc_mes0755: Invalid_tag-id sent by the mgmt-layer or tag_id not in use

DESCRIPTION: An invalid_tag-id was sent by the management layer or the tag_id is not in use.
DATA: (1) tag_id (2) in_use field
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a driver and/or management stack problem. If problems persist, report these errors to Technical Support.

lpfc_mes0756: Null NDLP for oxid

DESCRIPTION: Null NDLP for oxid.
DATA: (1) oxid (2) sid (3) tag
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a driver and/or management stack problem. If problems persist, report these errors to Technical Support.

lpfc_mes0757: IOCB Data

DESCRIPTION: Log IOCB data fields.
DATA: (1) vip, (2) context2, (3) context3, (4) remoteID
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0758: Failed to allocate iocb

DESCRIPTION: Failed to allocate IOCB for passing unsolicited receive sequence to upper layer protocol.
DATA: (1) els ring number, (2) fh_r_ctil, (3) fh_type
SEVERITY: Error
LOG: Always
ACTION: None required, just one sequence got dropped. However, if the problem persists, it might have impact on inband management. Reboot the system if necessary.

lpfc_mes0759: Outstanding SCSI command in the scheduler

DESCRIPTION: Log HBA information when there are outstanding SCSI commands in the scheduler.
DATA: (1) hba_cr, (2) hba_max, (3) hba_stsx, (4) trgt_lc, (5) tgt_cr, (6) tgt_max, (7) t_sts, (8) lun_cr, (9) lun_max, (10) lun_st
SEVERITY: Information
LOG: LOG_FCP verbose
ACTION: None required.

lpfc_mes0760: SCSI buffer to be freed has null pointer

DESCRIPTION: The SCSI buffer to be freed has a null pointer, so a potential issue exists.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: None required if it only happened once or so. However, if the problem persists, reset the HBA or reboot the system.

lpfc_mes0761: SCSI buffer count out of range

DESCRIPTION: The SCSI buffer count in the SCSI command is out of range.
DATA: (1) count
SEVERITY: Error
LOG: Always
ACTION: A SCSI command returned with a busy state. No action is required if it only happened once or so. However, if the problem persists, reboot the system.

Node Table Events (0900 - 0999)

lpfc_mes0900: Cleanup node for NPort <nlp_DID> on vpi <vpi>

DESCRIPTION: The driver node table entry for a remote NPort was removed.
DATA: (1) nlp_flag (2) nlp_state (3) nlp_rpi (4) status
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0901: FIND node DID mapped

DESCRIPTION: The driver is searching for a node table entry, on the mapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) data1
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0902: FIND node DID mapped

DESCRIPTION: The driver is searching for a node table entry, on the mapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) data1
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0903: Add scsiid <sid> to BIND list

DESCRIPTION: The driver is putting the node table entry on the binding list.
DATA: 1) bind_cnt (2) nlp_DID (3) bind_type (4) blp
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0904: Add NPort <did> to PLOGI list on vpi <vpi>

DESCRIPTION: The driver is putting the node table entry on the PLOGI list.
DATA: (1) plogi_cnt (2) blp
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0905: Add NPort <did> to ADISC list

DESCRIPTION: The driver is putting the node table entry on the ADISC list.
DATA: (1) adisc_cnt (2) blp
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0906: Add NPort <did> to UNMAP list

DESCRIPTION: The driver is putting the node table entry on the unmap list.
DATA: (1) unmap_cnt (2) blp (3) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0907: Add NPort <did> to MAP list scsiid <sid>

DESCRIPTION: The driver is putting the node table entry on the mapped list.
DATA: (1) map_cnt (2) blp (3) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0908: FIND node DID bind

DESCRIPTION: The driver is searching for a node table entry, on the binding list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0909: Removing default rpi on vpi <vpi>

DESCRIPTION: The driver is searching for a node table entry, on the binding list, based on the DID.
DATA: (1) vport DID (2) rport DID (3) nlp_flag (4) status
SEVERITY: Information
LOG_NODE verbose
ACTION: None required.

lpfc_mes0910: FIND node DID unmapped

DESCRIPTION: The driver is searching for a node table entry on the unmapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0911: FIND node DID unmapped

DESCRIPTION: The driver is searching for a node table entry, on the unmapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0929: FIND node DID unmapped

DESCRIPTION: The driver is searching for a node table entry, on the unmapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0930: FIND node DID mapped

DESCRIPTION: The driver is searching for a node table entry, on the mapped node list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0931: FIND node DID bind

DESCRIPTION: The driver is searching for a node table entry, on the binding list, based on the DID.
DATA: (1) nlp (2) nlp_DID (3) nlp_flag (4) state|xri|type|rpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0932: FIND node did <did> NOT FOUND on vpi <vpi>

DESCRIPTION: The driver searched for a node table entry based on the DID and did not find the entry.
DATA: (1) order
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0933: <func> ALLOC node did <did> on vpi <vpi>

DESCRIPTION: The driver allocated a node table entry based on the DID and did not find the entry.
DATA: (1) func (2) did (3) vpi
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

lpfc_mes0934: <func> FREE node did <did> on vpi <vpi>

DESCRIPTION: The driver searched for a node table entry based on the DID and did not find the entry.
DATA: (1) did (2) rpi (3) vpi (4) flag
SEVERITY: Information
LOG: LOG_NODE verbose
ACTION: None required.

Miscellaneous Events (1200 - 1299)

lpfc_mes1206: Dropped frame rctl:<str> type:<str>

DESCRIPTION: Dropped an unsolicited frame.
DATA: None
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: None required.

lpfc_mes1207: Received frame rctl:<str> type:<str>

DESCRIPTION: Received an unsolicited frame.
DATA: None
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: None required.

lpfc_mes1208: C_CT request error

DESCRIPTION: The CT response returned more data than the user buffer could hold.
DATA: (1) dfc_flag (2) 4096
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: Modify the user application issuing a CT request to allow for a larger response buffer.

lpfc_mes1210: Convert ASC to hex. Input byte cnt <1

DESCRIPTION: ASCII string to hexadecimal conversion failed. The input byte count is less than 1.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver problem. If the problem persists, report the error to Technical Support.

lpfc_mes1212: Convert ASC to hex. Output buffer too small

DESCRIPTION: ASCII string to hexadecimal conversion failed. The output buffer byte size is less than half of the input byte count. Every two input characters (bytes) require one output byte.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: This error could indicate a software driver problem. If the problem persists, report the error to Technical Support.

lpfc_mes1213: Convert ASC to hex. Input char seq not ASC hex

DESCRIPTION: The ASCII hexadecimal input string contains a non-ASCII hexadecimal character.
DATA: None
SEVERITY: Error configuration
LOG: Always
ACTION: Make necessary changes to the lpfc configuration file.

lpfc_mes1214: Xmit CT ABTS ACC

DESCRIPTION: Information on transmit CT ABTS ACC.
DATA: (1) bls_rsp command, (2) oxid, (3) sid, (4) hba_state
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: None required.

lpfc_mes1215: Ignoring unsolicited CT No HBQ

DESCRIPTION: Information on the CT ABTS buffer when there is no HBQ associated with it.
DATA: (1) iocb_ulpStatus
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: None required.

lpfc_mes1216: Ignoring unsolicited CT No HBQ

DESCRIPTION: Information on the CT ABTS buffer when there is no HBQ associated with it.
DATA: (1) size of HBQ buffer, (2) iocb_ulpStatus
SEVERITY: Information
LOG: LOG_MISC verbose
ACTION: None required.

lpfc_mes1217: Find ndlp returned NULL

DESCRIPTION: Find NDLP returned NULL to a CT ABTS context.
DATA: (1) oxid, (2) SID
SEVERITY: Error
LOG: Always
ACTION: None required. The received unsolicited event ABTS will be ignored.

Link Events (1300 - 1399)

lpfc_mes1300: Re-establishing Link, timer expired

DESCRIPTION: The driver detected a condition where it had to re-initialize the link.
DATA: (1) fc_flag (2) fc_ffstate
SEVERITY: Error
LOG: Always
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

lpfc_mes1301: Re-establishing Link

DESCRIPTION: The driver detected a condition in which it had to re-initialize the link.
DATA: (1) status (2) status1 (3) status2
SEVERITY: Information
LOG: LOG_LINK_EVENT verbose
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

lpfc_mes1302: Reset link speed to auto. 1G HBA cfg'd for 2G

DESCRIPTION: The driver is reinitializing the link speed to auto-detect.
DATA: (1) current link speed
SEVERITY: Warning
LOG: LOG_LINK_EVENT verbose
ACTION: None required.

lpfc_mes1303: Link Up Event <eventTag> received

DESCRIPTION: A link up event was received. It is also possible for multiple link events to be received together.
DATA:(1) fc_eventTag (2) granted_AL_PA (3) UlnkSpeed (4) alpa_map[0]
DETAIL: If link events received, log (1) last event number received, (2) ALPA granted, (3) Link speed, (4) number of entries in the loop init LILP ALPA map. An ALPA map message is also recorded if LINK_EVENT verbose mode is set. Each ALPA map message contains 16 ALPAs (5) mm (6) ft.
SEVERITY: Error
LOG: Always
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

lpfc_mes1304: Link Up Event ALPA map

DESCRIPTION: A link up event was received.
DATA: (1) wd1 (2) wd2 (3) wd3 (4) wd4
SEVERITY: Warning
LOG: LOG_LINK_EVENT verbose
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

lpfc_mes1305: Link Down Event <eventTag> received

DESCRIPTION: A link down event was received.
DATA: (1) fc_eventTag (2) hba_state (3) fc_flag
SEVERITY: Error
LOG: Always
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network.

lpfc_mes1306: Link Down timeout

DESCRIPTION: The link was down for greater than the configuration parameter (lpfc_linkdown_tmo) in seconds. All I/O associated with the devices on this link will fail.
DATA: (1) hba_state (2) fc_flag (3) fc_ns_retry
SEVERITY: Warning
LOG: LOG_LINK_EVENT | LOG_DISCOVERY verbose
ACTION: Check the HBA cable/connection to the Fibre Channel network.

lpfc_mes1307: READ_LA mbox error <mbxStatus> state <hba_state>

DESCRIPTION: The driver cannot determine what type of link event occurred.
DATA: None
SEVERITY: Information
LOG: LOG_LINK_EVENT verbose
ACTION: If numerous link events are occurring, check the physical connections to the Fibre Channel network. May indicate a possible hardware or firmware problem.

lpfc_mes1308: Menlo Maint Mode Link Up Event <eventTag> rcvd

DESCRIPTION: The driver received a Menlo Maint Mode Link Up Event
DATA: link event tag
SEVERITY: Information
LOG: LOG_LINK_EVENT verbose
ACTION: None required.

lpfc_mes1309: Menlo Maint Mode Link Down Event <evTag> rcvd Data <fc_evTag> <hba_state> <fc_flag>

DESCRIPTION: The driver received a Menlo Maint Mode Link down Event.
DATA: link event tag
SEVERITY: Information
LOG: Always
ACTION: None required.

lpfc_mes1310: FCoE is running golden firmware. Update immediately.

DESCRIPTION: The FCoE card requires a firmware update.
DATA: link event tag
SEVERITY: Error
LOG: Always
ACTION: Firmware update required.

lpfc_mes1311: FCoE hba port in diagnostic mode. Operational use suspended.

DESCRIPTION: The HBA port is not operational while in diagnostic mode.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Firmware update required.

lpfc_mes1312: FCoE chip is running unknown firmware <ft>.

DESCRIPTION: The FCoE card requires a firmware update.
DATA: firmware tag
SEVERITY: Error
LOG: Always
ACTION: Firmware update may be required.

lpfc_mes1313: Invalid FRU data found on adapter.

DESCRIPTION: Return adapter to Emulex for repair.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Return adapter to Emulex for repair.

lpfc_mes1314: Adapter Link is disabled

DESCRIPTION: The software has disabled the adapter link.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Use the management software to re-enable the link.

lpfc_mes1315: Adapter failed DOWN_LINK

DESCRIPTION: The adapter was unable to disable the link.
DATA: mailbox status
SEVERITY: Error
LOG: Always
ACTION: May indicate a hardware or firmware problem. If this problem persists, report these errors to Technical Support.

LIBDFC Events (1600 - 1699)

lpfc_mes1600: ioctl entry

DESCRIPTION: Use to trace IOCTLs from LIBDFC. Logged on completion.
DATA:(1) cmd code (2) return code (3) return count
SEVERITY: Information
LOG: LOG_LIBDFC verbose
ACTION: None required.

VPort Events (1800-1899)

lpfc_mes1800: Failed to create vport. Insufficient VPIs

DESCRIPTION: There are no VPIs available to create a vport. Either the physical port does not support VPIs or all available VPIs are in use.
DATA: (1) vpi (2) max_vpi (3) avail_vpi
SEVERITY: Error
LOG: Always
ACTION: Delete unused/unneeded vports. If problems persist, report error to Emulex Technical Support.

lpfc_mes1801: Failed to create vport. Incorrect SLI revision

DESCRIPTION: The FW must report SLI-3 capable for vport creation.
DATA: (1) sli_rev
SEVERITY: Warning
LOG: LOG_VPORT verbose
ACTION: Check FW revision and contact Emulex Technical Support.

lpfc_mes1802: VMKernel issued unknown VPORT command - rejecting

DESCRIPTION: The VMKernel issued an unknown vport command - error command.
DATA: (1) vport cmd
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1803: VPort unreg login to all rpis failed - trying single rpi unreg

DESCRIPTION: The vport's unreg_login to all rpis failed, defaulting to sequential unreg_login per rpi.
DATA: (1) vport DID
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1804: VPort unreg vpi failed

DESCRIPTION: The VPort's unreg_login didn't complete, treating as a failure and defaulting to sequential unreg_login per rpi.
DATA: (1) vport DID
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1805: Failed to create scsi host for VPort, instance %d

DESCRIPTION: The VPort create failed because the scsi_register failed to create a SCSI host.
DATA: (1) vport instance
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1806: Failed to allocate VPort memory resources, instance %d

DESCRIPTION: The VPort create failed because the vport could not be allocated.
DATA: (1) vport instance
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1807: VPort FDISC did not complete in time allotted

DESCRIPTION: The VPort's FDISC did not complete in the timeout period.
DATA: None
SEVERITY: Warning
LOG: LOG_VPORT verbose
ACTION: This could be a fabric issue with a large vport count. If problems persist, contact Emulex Technical Support.

lpfc_mes1808: Successfully created VPort - vpi <vpi> DID <vport DID> Type <port_type> State <port_state>

DESCRIPTION: Successfully created vport, display vital data.
DATA: (1) vpi (2) vport DID (3) port_type (4) port_state
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1809: Unallowed delete of physical vport from vport_delete

DESCRIPTION: The physical vport belongs to the physical host.
DATA: (1) vport DID (2) port_type (3) port_state
SEVERITY: Error
LOG: Always
ACTION: None required.

lpfc_mes1810: Vport getinfo on vpi <vpi> DID <DID>

DESCRIPTION: The vport is returning vport data elements to the caller.
DATA: (1) fail_reason (2) prev fail reason (3) vports max (4) vports inuse (5) linktype (6) port_state
SEVERITY: Information

LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1811: VPort delete requested on vport DID <DID> vpi <vpi> state <port_state>

DESCRIPTION: A request to delete a vport is executing. The driver dumps the vport's state and node counts.
DATA: (1) plogi cnt (2) adisc cnt (3) unmapped cnt (4) mapped cnt
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1812: VPort fabric LOGO didn't complete, treating as failure

DESCRIPTION: The VPort's fabric logout didn't complete. Continuing vport teardown.
DATA: (1) vport DID
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1813: VPort could located target node binding

DESCRIPTION: The vport was called to remove a target given a target ID, but the vport could not locate a node binding by TGTID.
DATA: (1) vport vpi (2) vport DID (3) tgtid
SEVERITY: Error
LOG: Always
ACTION: Contact Emulex Technical Support.

lpfc_mes1814: Vport discovery quiesce wait on vpi

DESCRIPTION: The vport node discovery is active.
DATA: (1) port_state (2) fc_flag (3) num_disc_nodes (4) fc_plogi_cnt (5) fc_adisc_cnt (6) fc_map_cnt
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1815: Vport discovery quiesce cmplt on vpi <vpi>

DESCRIPTION: The vport node discovery has completed.
DATA: (1) port_state (2) fc_flag (3) fc_map_cnt
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1816: Vport discovery quiesce timeout on vpi <vpi>

DESCRIPTION: The vport node discovery timed out waiting to quiesce.
DATA: (1) port_state (2) fc_flag (3) num_disc_nodes (4) fc_plogi_cnt (5) fc_adisc_cnt (6) fc_map_cnt
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1817: Target %d assigned to vpi %d DID %s WWPN %s WWNN %s

DESCRIPTION: Target mapping info for vport
DATA: (1) Target number (2) vpi number (3) DID <d_id> (4) WWPN <wwpn> (5) WWNN <wwnn>

SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1818: Failed to INIT_VPI

DESCRIPTION: VPI activation failed
DATA: (1) vpi (2) rc
SEVERITY: Warning
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1819: Rcvd an event with vport not null

DESCRIPTION: Received an event with the VPort not null.
DATA: (1) event (2) vpi
SEVERITY: Information
LOG: LOG_VPORT verbose
ACTION: None required.

lpfc_mes1820: ELS Ring rcvd an unexpected Rctl type

DESCRIPTION: ELS ring received an unexpected RCTL type
DATA: (1) ELS ring-number (2) fh_r_ctl (3) fh_type
SEVERITY: Warning
LOG: LOG_VPORT verbose
ACTION: None required.

Initialization Events (4500 - 4599)

lpfc_mes4500: iotag out of range

DESCRIPTION: The iotag lookup failed because it is outside the allowable range.
DATA: (1) iotag (2) max (3) iocb[7]
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware, firmware, or driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes4501: READ_CONFIG failed

DESCRIPTION: The READ_CONFIG mailbox command failed.
DATA: (1) mbxCmd (2) mbxStatus
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4502: Config Params: XRI(B:<val> M:<val>) VPI(B:<val> M:<val>) VFI(B:<val> M:<val>) RPI(B:<val> M:<val>) FCFI(B:<val> M:<val>)

DESCRIPTION: Configuration parameters reported by adapter. Each parameter listed has a B (base) value and a M (max) value.
DATA:
SEVERITY: Information

LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4503: IOCB Rsp Err ring <no> tag <no>

DESCRIPTION: IOCB error response.
DATA: iocb[0] - iocb[15]
SEVERITY: Information
LOG: LOG_SLI verbose
ACTION: None required.

lpfc_mes4504: <string> mbox failed

DESCRIPTION: Failed mailbox command occurred in the function <string>.
DATA: (1) shdr_status (2) shdr_add_status (3) rc
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4505: Failed to allocate XRI

DESCRIPTION: Unable to allocate an XRI.
DATA: (1) next_xri (2) max_xri (3) xri_used
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a software driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes4506: Work Queue Full

DESCRIPTION: Unable to add element to work queue because the adapter has not processed the oldest element.
DATA: (1) host_index (2) entry_count (3) hba_index
SEVERITY: Warning
LOG: LOG_SLI verbose
ACTION: None required.

lpfc_mes4508: FCP complete w/o iocb

DESCRIPTION: Cannot find the FCP command IOCB using the iotag lookup.
DATA: (1) iotag
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware, firmware, or driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes4509: ELS complete w/o iocb

DESCRIPTION: Cannot find the ELS command IOCB using the iotag lookup.
DATA: (1) iotag
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware, firmware, or driver problem. If problems persist, report these errors to Technical Support.

lpfc_mes4510: Unrecoverable Adapter Error

DESCRIPTION: Error Attention reported by the adapter.
DATA: (1) uerr_lo (2) uerr_hi (3) ue_mask_lo_reg (4) ue_mask_hi_reg
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4511: Cannot issue mailbox cmd <opcode>

DESCRIPTION: Mailbox command cannot be issued.
DATA: (1) vpi (2) rc
SEVERITY: Warning
LOG: LOG_MBOX | LOG_SLI verbose
ACTION: None required.

lpfc_mes4512: Cannot issue sync mailbox cmd <opcode>

DESCRIPTION: Synchronous mailbox command cannot be issued.
DATA: (1) vpi (2) rc
SEVERITY: Warning
LOG: LOG_MBOX | LOG_SLI verbose
ACTION: None required.

lpfc_mes4513: ELS WQE has a different Queue Id.

DESCRIPTION: The event-ID consumed by the adapter does not match the intended ELS WQ-ID.
DATA: (1) Event Queue-Id (2) ELS WQ-Id
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4514: Invalid Completion event code.

DESCRIPTION: An invalid slow-path completion event was received.
DATA: (1) majorcode (2) minorcode
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4515: Invalid Completion Queue Id.

DESCRIPTION: An invalid Completion Queue ID was received.
DATA: (1) Completion Queue ID received from the firmware.
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4516: Fast path WQE has a different Queue Id.

DESCRIPTION: The event-ID consumed by the adapter does not match the intended FCP WQ-ID.
DATA: (1) Event Queue-Id (2) FCP WQ-Id

SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4517: Invalid Completion event code.

DESCRIPTION: An invalid fast-path completion event was received.
DATA: (1) majorcode (2) minorcode
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4518: Fast path EventQ has a different Queue Id.

DESCRIPTION: Fast path EventQ has a different Queue ID.
DATA: (1) Event Queue-Id (2) FCP Q-Id
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4519: New FCF Index was discovered.

DESCRIPTION: A new FCF index was discovered.
DATA: (1) fcf_index (2) event_tag
SEVERITY: Information
LOG: LOG_DISCOVERY verbose
ACTION: None required.

lpfc_mes4520: FCF Table full.

DESCRIPTION: The FCF table is full.
DATA: (1) count (2) event_tag
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: None required. If problem persists, contact Technical Support.

lpfc_mes4521: FCF disconnected from network.

DESCRIPTION: FCF disconnected from the network.
DATA: (1) fcf_index (2) event_tag
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: None required. If problem persists, contact Technical Support.

lpfc_mes4522: Unknown FCoE event received from network.

DESCRIPTION: The network received an unknown FCoE event.
DATA: (1) fcf_event_type (2) acqe_event_tag
SEVERITY: Warning
LOG: LOG_DISCOVERY verbose
ACTION: None required.

lpfc_mes4523: Invalid CT command.

DESCRIPTION: Invalid CT command.
DATA: (1) ct (2) command
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4524: Failed to allocate CQ_EVENT entry.

DESCRIPTION: Failed to allocate CQ_EVENT entry.
DATA: None
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required. If problem persists, contact Technical Support.

lpfc_mes4525: Invalid work queue CQE subtype.

DESCRIPTION: Invalid work queue CQE subtype.
DATA: (1) CQE subtype
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4526: Not a valid WCQE code.

DESCRIPTION: Not a valid WCQE code.
DATA: (1) WCQE code
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4527: Receive Frame Truncated.

DESCRIPTION: Receive Frame is truncated.
DATA: None
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4528: Invalid completion queue type.

DESCRIPTION: Invalid completion queue type.
DATA: (1) Completion Queue Type
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4529: No event-queue entry from the CQ.

DESCRIPTION: No event-queue entry from the CQ.
DATA: (1) Completion Queue Id (2) Completion Queue Type
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4530: Invalid WCQE code.

DESCRIPTION: Invalid WCQE code.
DATA: (1) Invalid Work Queue Completion code.
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4531: Fast-path completion queue does not exist.

DESCRIPTION: Fast-path completion queue does not exist.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4532: No entry from fast-path completion queue.

DESCRIPTION: No entry from fast-path completion queue.
DATA: (1) Completion queue_id.
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4533: FCoE Function not supported by firmware

DESCRIPTION: Firmware does not support FCoE.
DATA: (1) Function mode
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4534: Init link mailbox command failed

DESCRIPTION: Failed to initialize the FCoE link.
DATA: (1) mbx status
SEVERITY: Error
LOG: Always
ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4535: Invalid link fault code.

DESCRIPTION: Invalid link fault code.
DATA: (1) Link fault code.
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4536: vmk_fc_attach_transport failed

DESCRIPTION: Failed to attach adapter instance to transport.
DATA: None
SEVERITY: Error
LOG: Always

ACTION: This error may indicate a hardware or firmware problem. If problems persist, report these errors to Technical Support.

lpfc_mes4537: Invalid link attention type.

DESCRIPTION: Invalid link attention type.
DATA: (1) Link attention type.
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4538: Invalid link-attention link speed.

DESCRIPTION: Invalid link-attention link speed.
DATA: (1) Link speed.
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4539: The SLI4 DCBX asynchronous event is not handled yet.

DESCRIPTION: The SLI-4 DCBX asynchronous event is not handled yet.
DATA: (1) Event tag.
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4540: Read FCF record failed.

DESCRIPTION: Read FCF record failed.
DATA: (1) Return value from mailbox cmd
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4541: Invalid asynchronous event code.

DESCRIPTION: Invalid asynchronous event code.
DATA: (1) Event code.
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4542: CT Resp iocb timeout.

DESCRIPTION: CT Response IOCB timeout.
DATA: (1) IOCB's iotag (2) tag (3) Nport
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4543: CT Resp iocb error.

DESCRIPTION: CT Response IOCB error.
DATA: (1) rc (2) IOCB's iotag (3) tag (4) Nport
SEVERITY: Information
LOG: LOG_INIT verbose

ACTION: None required.

lpfc_mes4544: Failed to get the non-embedded SGE virtual address.

DESCRIPTION: Failed to get the SGE virtual address for the non-embedded mailbox command
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. This is an unlikely error. If this condition persists, contact Technical Support.

lpfc_mes4545: READ_FCF_RECORD mailbox failed

DESCRIPTION: Issue READ_FCF_RECORD mailbox returned status failure.
DATA: (1) status, (2) add_status
SEVERITY: Error
LOG: Always
ACTION: This is part of the driver's basic discovery process. It may be a critical problem as long as at least one of the FCF records reads back successfully. However, if none of the FCF records reads back successfully, reboot the system as necessary. If the problem persists, contact Technical Support.

lpfc_mes4546: FCP complete error

DESCRIPTION: FCP work queue complete entry error.
DATA: (1) wcqe status, (2) hardware status, (3) total data placed, (4) word3 of the wcqe
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4547: Read serdes parameter failed to allocate mailbox memory

DESCRIPTION: Read SerDes parameter failed to allocate mailbox memory.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: The driver failed to allocate mailbox command memory for reading the adapter region 23 to determine whether the link has been disabled. This may result in enabling the adapter port, which may have been permanently disabled by the management stack. If this condition persists, contact Technical Support.

lpfc_mes4548: Read link state failed to read config region 23

DESCRIPTION: Read link state failed to issue read config region 23 mailbox command.
DATA: (1) rc, (2) status
SEVERITY: Error
LOG: Always
ACTION: The driver failed to issue a mailbox command for reading the adapter region 23 to determine whether the link has been disabled. This may result in enabling the adapter port, which may have been permanently disabled by the management stack. If this condition persists, contact Technical Support.

lpfc_mes4549: ReceiveQ error

DESCRIPTION: Put Receive Queue Entry (RQE) to Receive Queue returned error.
DATA: (1) rc
SEVERITY: Error
LOG: Always

ACTION: None required. However, if problems persist, reset the HBA or reboot the system when necessary.

lpfc_mes4550: Reset HBA

DESCRIPTION: The driver invoked an HBA reset.
DATA: (1) port_state, (2) sli_flag
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4551: Performing PCI function reset

DESCRIPTION: The driver invoked a PCI function reset.
DATA: None
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4552: Restart HBA

DESCRIPTION: The driver invoked an HBA restart.
DATA: (1) port_state, (2) sli_flag
SEVERITY: Information
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4553: Failed to allocate connection table entry

DESCRIPTION: Failed to allocate connection table entry.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: It may not be a critical problem if the driver failed to allocate memory for some of the FCF connection table entries for the driver discover process. However, failure of the driver to allocate kernel memory may indicate a serious problem. Reboot the system if necessary.

lpfc_mes4554: Config region 23 has bad signature

DESCRIPTION: Config region 23 has bad signature.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: It may not be a critical problem for the driver and HBA's normal operation if configure region contains a bad signature. However, it may result in some of the management stack functionality not working properly to manage the HBA. Try to re-configure the device configure region 23 if necessary. If problems persist, contact Technical Support.

lpfc_mes4555: Config region 23 has bad version

DESCRIPTION: Config region 23 has bad version.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: It may not be a critical problem for the driver and HBA's normal operation if configure region contains a bad version. However, it may result in some of the management stack functionality not

working properly to manage the HBA. Try to re-configure the device configure region 23 if necessary. If problems persist, contact Technical Support.

lpfc_mes4556: Config region 23 has bad signature

DESCRIPTION: Config region 23 has bad signature.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: It may not be a critical problem for the driver and HBA's normal operation if configure region contains a bad signature. However, it may result in some of the management stack functionality not working properly to manage the HBA. Try to re-configure the device configure region 23 if necessary. If problems persist, contact Technical Support.

lpfc_mes4557: Config region 23 has bad version

DESCRIPTION: Config region 23 has bad version.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: It may not be a critical problem for the driver and HBA's normal operation if configure region contains a bad version. However, it may result in some of the management stack functionality not working properly to manage the HBA. Try to re-configure the device configure region 23 if necessary. If problems persist, contact Technical Support.

lpfc_mes4558: Init VPI mailbox failed

DESCRIPTION: Initialize VPI mailbox command completion returned failure.
DATA: (1) mbox cmd status
SEVERITY: Error
LOG: Always
ACTION: The specific vport will be put into an error state. May need to reset HBA or reboot system to recover. If problems persist, contact Technical Support.

lpfc_mes4559: No NPIV Fabric support

DESCRIPTION: The switch fabric does not support NPIV.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Check the fabric capability and configuration for NPIV support.

lpfc_mes4560: UNREG_FCFI mbox allocation failed

DESCRIPTION: Failed to allocate memory for issuing UNREG_FCFI mailbox command.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Technical Support.

lpfc_mes4561: UNREG_FCFI issue mbox failed

DESCRIPTION: Failed to issue UNREG_FCFI mailbox command to the HBA.
DATA: None
SEVERITY: Error

LOG: Always
ACTION: Driver failure, reboot the system if necessary. If this condition persists, contact Technical Support.

lpfc_mes4562: Received unknown vport command

DESCRIPTION: The driver received an unknown vport command.
DATA: (1) vport cmd, (2) arg
SEVERITY: Warning
LOG: LOG_INIT verbose
ACTION: None required.

lpfc_mes4563: LPFC create port: vmk_fc_attach_transport: failed

DESCRIPTION: The driver failed to attach to the FC transport layer.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: Reboot the system. If problems persist, contact Technical Support.

lpfc_mes4564: Clear Virtual Link Received for <VPI> <tag>.

DESCRIPTION: A Clear Virtual Link event was received.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: If numerous link events are occurring, check physical connections to Fibre Channel network.

lpfc_mes4565: READ_FCF_RECORD indicates empty FCF table

DESCRIPTION: The firmware was unable to find FCF_RECORD.
DATA: None
SEVERITY: Error
LOG: Always
ACTION: None required.